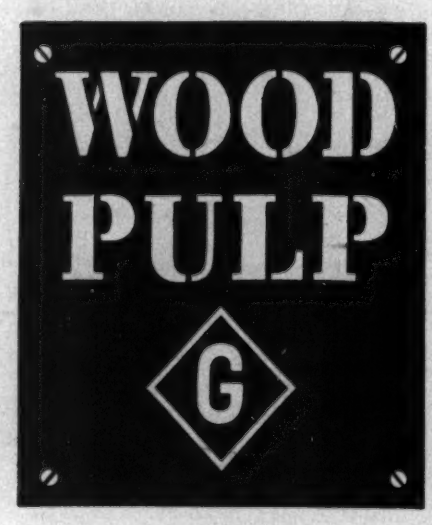
Paper
TRADE JOURNAL

SEPT. 21, 1951

HOW TO GET LONGER AND BETTER SERVICE FROM YOUR FELTS . . . See Page 26

HOW DO ADDITIVES AFFECT FIBER DISPERSION? . . . See Page 20



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to the giant's unchained strength,
Or curb his swiftness in the forward race?"
WILLIAM CULLEN BRYANT

For many decades, that which was once merely a hope has become a wondrous reality. Yet, vast as the industrial growth of the United States has been, future developments will be still more momentous. And Pulp and Paper, with its increasingly diverse and efficient products, will remain in the forefront of the advance.

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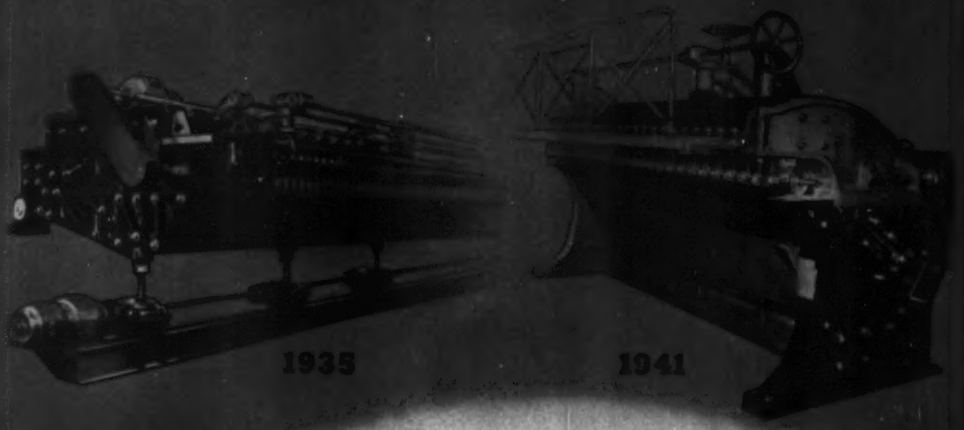

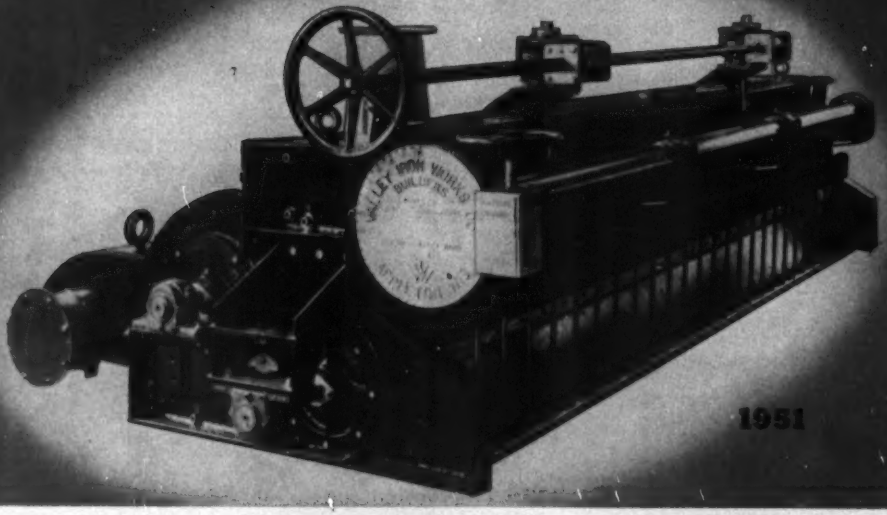

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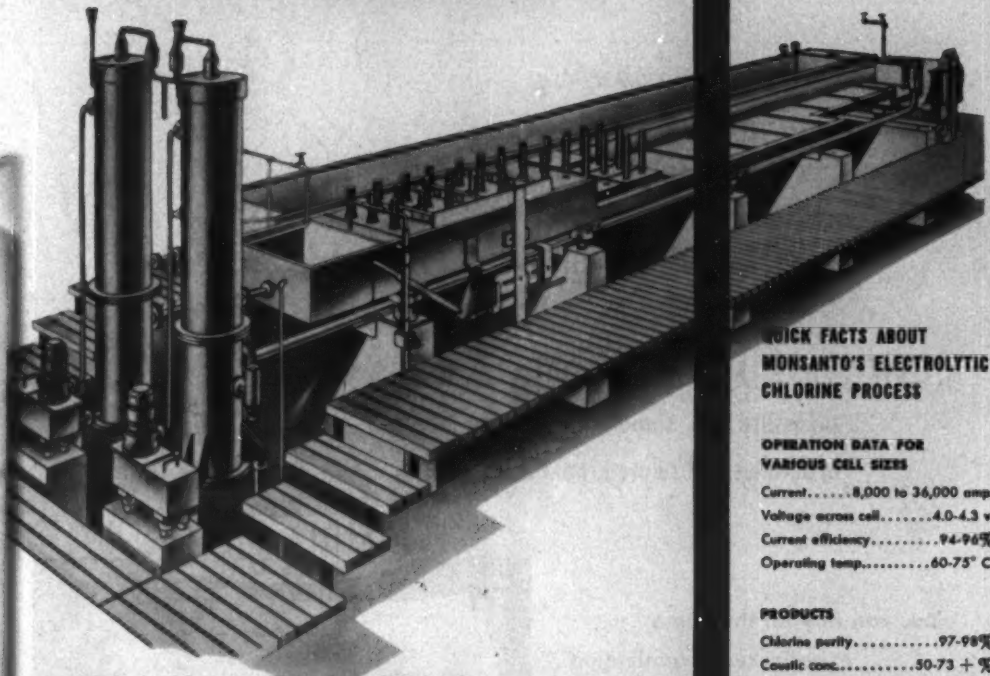

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OPERATION DATA FOR VARIOUS CELL SIZES

Current	8,000 to 36,000 amp.
Voltage across cell	4.0-4.3 v.
Current efficiency	94-96%
Operating temp.	60-75° C.

PRODUCTS

Chlorine purity	97-98%
Caustic conc.	50-73 + %
Hydrogen purity	99.8 ± 0.2%

CONSUMPTION — Per short ton of chlorine

Power, d.c. at cell terminals	3,100 kwh.
Sodium chloride	3,400-3,500 lb.
Graphite anodes	7 lb.
Mercury	3-4 oz.

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ABC

Paper TRADE JOURNAL

ABP

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NEXT WEEK

The necessity for providing industry with sufficient technical manpower is emphatically brought out in "Reflected Light is Not Enough" by A. C. Monteith, Vice-President of Westinghouse Electric Corp.

Several valuable suggestions for improving operating conditions to increase felt life will be found in "Conservation of Paper Machine Felts—Part II—Effect of Operation Conditions" by N. J. Larsen. This is a supplement to "Conservation of Paper Machine Felts—Part I—Design and Construction" by L. M. Woodside in this issue.

REMEMBER THESE DATES

SEPT. 26-28: Alkaline Pulping Conference of the Technical Assn. of the Pulp and Paper Industry at the John Marshall Hotel, Richmond, Va.

SEPT. 28-29: American Pulp and Paper Mill Superintendents Assn., Pennsylvania-New Jersey-Delaware Division, Pocono Manor, Mt. Pocono, Pa.

OCT. 4: Salesmen's Assn. of the Paper Industry Annual Luncheon, Stevens Hotel, Chicago, Ill.

OCT. 4-5-6: National Paper Trade Assn. Convention, Stevens Hotel, Chicago, Ill.

OCT. 5: Paper & Twine Assn. dinner, Hotel Blackstone, Chicago, Ill.

OCT. 10-12: American Pulp & Paper Mill Superintendents Assn., Southern and Southeastern Div'ns., George Washington Hotel, Jacksonville, Fla.

OCT. 13-17: The Packaging Machinery Mfrs. Institute, Nineteenth Annual Meeting, Mid Pines Club, Southern Pines, N. C.

OCT. 15-18: 6th Engineering Conference, Technical Assn. of Pulp and Paper Industry, General Oglethorpe Hotel, Wilmington Island, Savannah, Ga.

OCT. 29-31: National Foreign Trade Convention, Waldorf Astoria, New York City.

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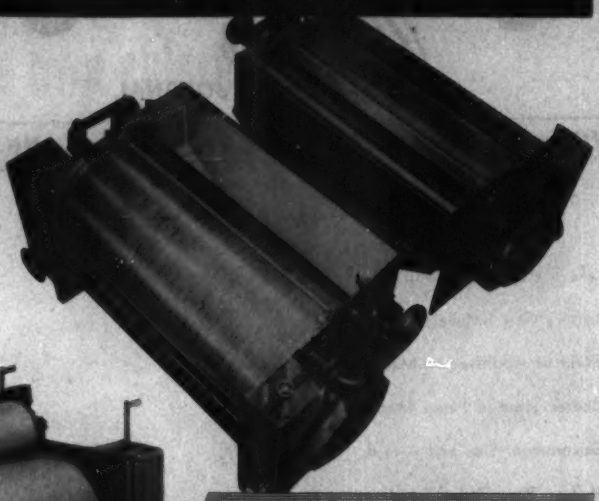
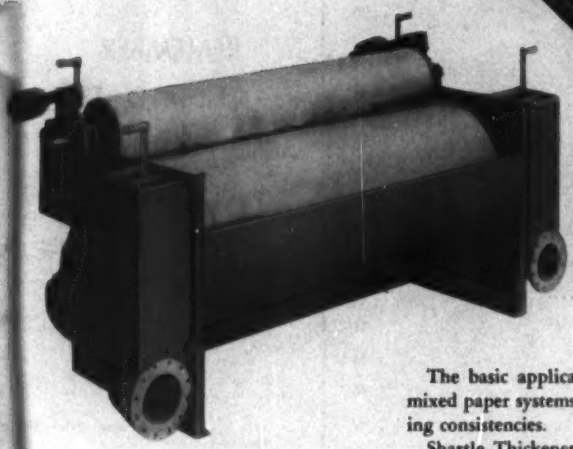
SHARTLE THICKENERS

Air-Couch Type





Couch Roll Type

The basic application of the Shartle Thickener is in mixed paper systems to thicken cleansed stock to jordaning consistencies.

Shartle Thickeners are also employed to thicken for refining—to thicken for bleaching—and to thicken for economical storage and handling of stocks of many different grades.

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Face length range 60" to 136"
Get construction features
contact Shartle

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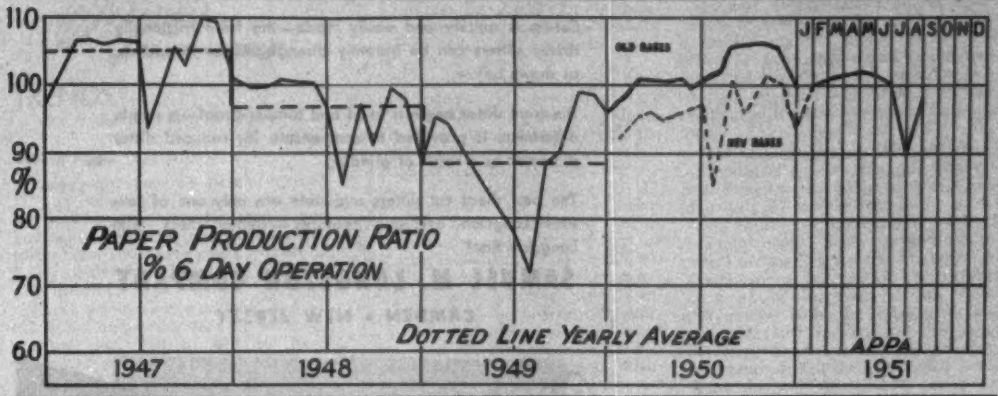
OUR BUSINESS



Brief of Important Figures

Source	Production	WEEK ENDING Sept. 8, '51	Aug. 11, '51	Sept. 9, '50
APPA	Paper Production Percent Capacity[a]	80.5	99.9	80.0
	Unbl. Kraft Paper Production Percent	79.8	93.2	74.9
NPA	Paperboard Operating Ratio Percent Inch Hours	71	94	81
		July 1951	June 1951x	July 1950
APPA	Paper Production[a] (Except Newsprint and Building Papers) ...Tons	808,000	891,487	748,000
	New Orders ...Tons	848,000	889,173	957,000
	Unfilled Orders ...Tons	1,035,765	984,685	775,090
	Shipments ...Tons	796,000	893,075	745,000
		[a]Aug. 1951	July 1951	Aug. 1950
NPA	Paperboard Production ...Tons	1,112,731	815,547	1,130,242
	New Orders ...Tons	1,081,321	814,729	1,365,968
	Unfilled Orders ...Tons	470,841	537,591	729,058
	Our Customers Activities Index[1]	Latest Mo.[c]	Previous Mo.[c]	Year Ago[c]
FRS	Manufactures Total Index	233	233	209
	Durable Mfg. Index	277	277	238
	Nondurable Mfg. Index	197	197	184
	Chemical Products Index	301	298	258
	Mfg. Food Products Index	164	158	164
	Printing and Publishing Index	170	179	169
ODC	Magazine Advg.-Printer's Ink Index	350	355	321
	Retail Sales Combined Adjusted Index	341.6	348.9	317.9
	Drug Index	234.9	229.8	222.0
	General Merchandise Group Index	319.5	333.6	311.1
	Grocery and Combination Index	440.8	444.3	378.9
	Prices Index			
BLS	Consumers Price Index[3]	185.2	185.4	170.2
	Wholesale all Commodities[2]	181.7	182.9	157.3
	Wholesale Foods[2]	186.3	187.3	162.1
	Commodities other than Farm Products and Foods[2]	170.5	171.7	148.7
	Wholesale Pulp and Paper[2]	196.2	196.2	155.6
	Purchasing Power of Dollar, Consumers Prices[3]	54.0	53.9	58.8
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	429.4	428.3	362.7
	Unemployment Compensation Initial Claims (M)	1,118	908	1,104
	Miscellaneous Carloadings-Thousands of Cars	1,937	1,582	1,845
	Electric Output (Million KW hr.)	34,966	35,136	31,608
PTJ	Average 32 P & P Common Stocks as of Sept. 15	$39.96	$39.33	$32.45

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[a] New 6-7 day basis.
[b] For Five Weeks.
[c] For details see APPA Monthly Statistical Summary—July 1951 Estimated Figures
[c] Latest Month Available on Request
x Revised figures

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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, September 19, 1951.

Waste Paper Dips Again

Paperboard demand hasn't revived as yet; paperboard mills are not taking up waste paper stocks; some paper and board mills are liquidating inventories; and the waste paper market is heavy with supply, weak in demand, soft in price.

Local prices this week dropped $2 on *mixed* and *news*, $5/7 on old corrugated, and $10 to $15 on hard whites. (See *Prices* page.)

All Sulphite Papers Short

Supply conditions in sulfite papers are a sharp reminder to NPA and OPS planning groups that the flow of sulfite pulps must not be endangered. Distributors in the New York area tell of a pressing demand from firms which are getting underway in defense work, and report a general shortage of tracing papers, negative and duplicator stocks, onionskins and manifolds, various book stocks, also 25 percent rag content. Consumer demand has dropped a little; some corporations and publishers are drawing on their paper stocks, and a few deferments have come in. Distributors as a whole are optimistic about the near-term prospects.

Pulp Supply Vs Overseas Rollback

So much is wrapped up in the issue of the suggested overseas price rollback that few, if any, are able to be objective about it. Mills want their supply of pulp; importers want to stay in this market.

Consensus of trade representatives in this market is that it would be foolhardy to risk a cutoff of pulp supply at this time. Sulfites and specialty grades are badly needed for the defense program, and until this supply is assured from domestic sources, there is no disposition to support a movement to roll back overseas prices, should it mean a loss of tonnage. Many are disposed to let the supply-demand factor force the price down.

Cons of the much-discussed rollback are so well presented in a letter to the editor that is carried in full.

— E.P. N.

Paperboard Production (Tons)*

	Sept. 8 1951	Sept. 1 1951	Sept. 9 1950
Production	161,170	216,789	180,467
New Orders	262,017	184,783	191,196
Unfilled Orders	566,141	470,481	738,187
% of Activity	71	93	81

* Source: NPA.

September 14, 1951

Gentlemen:

In your September 7 issue, under *Trends*, you infer that a rollback by OPS on ceiling prices for overseas pulp is likely to occur, the rollback indicated being to Canadian price levels grade by grade.

If sound reasoning and equity were assured, one would have no concern over the prospects of such a rollback materializing but, unfortunately, the illogical always seems to happen when government control agencies are involved.

The fact that OPS fixed higher ceilings on overseas woodpulp leaves no argument over the fact that there were justifiable reasons for establishing such prices. Even at the higher ceiling prices for overseas pulp, Scandinavian sellers have drastically curtailed their shipments to the United States, and the few companies who are continuing to ship reduced quantities do so only because they are willing to take the lower prices here in this market to try and keep a position with their old customers. The main point that seems to be disregarded is that no American paper mill is going to pay a premium of $45 to $55 a ton for overseas pulp over the Canadian prices if they could obtain satisfactory grades in North America. It should be easy to recognize that buyers are only purchasing overseas woodpulp because they cannot obtain sufficient tonnage of necessary quality to maintain their production of special quality papers. The rollback under consideration would only serve to bring an end to shipments of overseas pulp to our market. As a result, the converting paper mills would have to forego their major asset, namely, the freedom to utilize materials which give them the opportunity to produce better papers and, therefore, withstand the pressure they could not cope with in meeting competition from the integrated mills. Is this what OPS wants to see happen?

The very same reasoning applies to the use-limitation and inventory orders. The fact that Scandinavian prices are considerably higher means that no buyer is going to either use or create inventories of overseas pulp unless they must have such pulp to maintain their operations. These orders should, therefore, not apply to overseas pulp, as buyers are automatically policing both their use and inventories of high cost pulp. These controls are only creating unnecessary complications.

To roll back overseas pulp prices to the Canadian levels would, in turn, automatically establish a strict price control on Canadian pulp because any order issuing would then have to limit the prices buyers could pay for any imported pulp. There could be no discrimination as to Canada versus Sweden or Norway. Canadian producers would not welcome being put in the straitjacket OPS would like to provide for them through the indirect means of a rollback of Scandinavian prices to Canadian levels. Further, if it is logical to roll back Scandinavian prices, with their present extremely high cost of production, to the lower levels presently existing on lower cost Canadian pulp, it should then follow that the next step would be to roll-back all imported pulp, including Canadian, to the lower price level prevailing on the still lower cost domestic pulp.

The apparent reason OPS, in talking of rollbacks on overseas pulp (later it will come to the rolling back of Canadian prices) is that they want to develop specific tailored prices for each grade of paper. Such a program naturally involves a terrific number of complications because of the varying cost of production which exists throughout both the integrated and non-integrated sections of the paper industry. Even the best of schemers will never find a slide rule that could figure out any one or two prices for a specific grade of paper which would make, at the same time, for any equity throughout the paper industry. The only way out is, as usual, to fix prices higher than is necessary for the lowest cost producers. No feasible rollback of pulp prices can be worked out to a point where production costs between integrated and non-integrated mills can be in line without subsidizing the high cost operations. The question to be asked is why, with plenty paper and board production available, is a specific tailored price control necessary today and, certainly, with new production coming into the market every month, why it is going to be necessary for the tomorrows?

At any rate, the proposed rollback on pulp prices on overseas pulp is unnecessary and illogical. It completely ignores today's mounting cost for wood as well as all other inflated factors of costs. It disregards that since price control shipments on overseas pulp have already been drastically reduced and could become a mere trickle if prices were rolled back to the levels proposed. It does, however, clearly indicate the imperialistic trend developing in Washington to wield the big stick on other nations. The Scandinavian countries are living courageously within minutes of the power of the Soviet and are spending large sums (Sweden gets no funds from the U. S.) to build up their armament to stand with America and the rest of the free world. If other countries in Europe, to whom we are sending billions, were doing an equal job we would not be living under the present threat of war or finding it necessary to send so much of our tax money overseas. OPS should realize it sometimes can be a mistake not to let well enough alone.

Yours very truly,
(Signed) JAMES DONALDSON,
President,
Stora Kopparberg Corporation,
New York.

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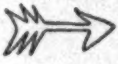
Pitch Control

Calgon's Threshold Treatment controls pitch in the manufacture of groundwood pulp and paper.



Corrosion of Calender Stack Rolls

Calender stack rolls, which corrode and pit from continuous contact with water, are protected by Calgon.

Kier Cooking of Rag Stock

Calgon improves whiteness . . . eliminates scum and stains in the kier cooking of cotton or linen rags, where caustic soda or soda ash is the alkali used in the cooking liquor.

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Calgon prevents harmful scale formations when washing de-inked paper stock and alkaline pulps.

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News of the Week

Paper TRADE JOURNAL

NEWSPAPERS BUY BERWIN

DANSVILLE, N. Y.—The Gannett Co., Inc., of Rochester, parent oganization of the twenty-one-newspaper Gannett group, took over the Berwin Paper Manufacturing Corp. of Dansville on September 17. Gannett will convert Berwin's present tissue paper making facilities to newsprint. The production aim is sixty tons a day within two years.

Berwin's present capacity is fourteen tons a day, using cylinder paper making machines. Gannett's plans were understood to call for a building addition to house a high-speed Fourdrinier paper machine, specially designed for newsprint.

LAKE STATES YEAST ADDITION

RHINELANDER, Wis.—In an effort to make the torula yeast process more effective in reducing sulphite pollution, Lake States Yeast Corp. is putting up an addition to its experimental spent liquor treatment plant here.

This half-million-dollar plant was built three years ago by Wisconsin and Michigan paper companies, next door to the sulphite pulp mill of Rhinelander Paper Co., which now operates it. The industry uses it to provide a full mill-scale test of the yeast process of pollution control that was developed by scientists in the laboratories of the Sulphite Pulp Manufacturers' Research League and tested on a small scale in a pilot plant at Appleton. League technical men keep close track of developments at the Lake States plant, and report the operating results to all League members.

The new addition will be a brick and steel structure attached to the rear of the present building. It will house a unit to remove dissolved gases from the spent liquor before this liquor goes into the large tank where the yeast organisms are propagated. Also, the building will provide space for new circulation equipment that will be used for maintaining the most favorable temperatures inside the propagating tank.

If actual results turn out as hoped for, the plant addition should boost the treatment plant's effectiveness in reducing sulphite pollution of the Wisconsin river by speeding action of the yeast organisms which consume the wood sugars in this industrial effluent. Increased yield of yeast would also reduce costs and improve other mills' chances of adopting the yeast treatment process for handling their own pollution problems.

Riegel Construction Progressing

Construction of the huge sulphate pulp mill of the Riegel-Carolina Corp. at Acme, N. C., is progressing rapidly. The plant, which will cost approximately $13,500,000, is near extensive timberlands bought by Riegel in 1938. The site is 22 miles west of the port city of Wilmington, N. C.

BROWN'S NEW INSTALLATION

Due to a shortage of sulphur, work is now in progress for the installation of a Dorr FluoSolids system for the roasting of iron sulphide concentrates to provide Brown Co. with an ample supply of sulphur at a cost which will compare very favorably with present costs of elemental sulphur now shipped from Texas and Louisiana.

The capacity of the plant is the sulphur equivalent of 9,000 tons per year in the form of sulphur dioxide gas.

The concentrates will be furnished under a contract with the Vermont Copper Co. of South Strafford, Vt., and will utilize the tailings after the copper concentrate has been removed. This will be accomplished by the flotation process.

The Vermont firm is currently piling out tailings from their copper concentrate production in a quantity more than sufficient to supply all of Brown Co.'s requirements.

The new plant is expected to be completed and in operation within eight months and is being laid out with a view to doubling its capacity if found necessary in the future with little added capital required.

HOWARD SMITH EXPANSION

OTTAWA — In addition to the new sulphate pulp mill which the company proposes to build at Crabtree Mills to have an annual capacity of about 40,000 tons and costing about $8,500,000, the Howard Smith Paper Mills, Ltd., has a program of plant renewal and extension under way that will involve the spending of approximately $15,700,000.

This program includes the installation of a fourth Fourdrinier paper machine in Cornwall where it is expected to increase production capacity of book, writing and related grades of paper by over 18,000 tons a year; an extension to the soda pulp mill in Cornwall which will raise the soda pulp production by approximately 25,000 tons a year; the addition of another Fourdrinier paper machine at the Merritton division of Alliance Paper Mills Ltd., raising the productive capacity for glassine, greaseproof and other similar papers by about 5,000 tons a year; more new equipment is being installed at the Aborite division which will raise the productive capacity by about 50 percent, and a new series of boiler plants are being erected in both Cornwall and Merritton.

Continuous Recausticizing at Natchez

The photo shows the Dorr Continuous Recausticizing System installed at Natchez for recovery of soda chemicals. The Dorr Causticizers, White Liquor Clarifier, two-stage Mud Washer and a portion of the Dregs Washer can be clearly seen, with storage tanks in the background.

ANGLO-CANADIAN PROGRESS

The new sulfite mill of Anglo-Canadian Pulp & Paper Mills, Ltd. at Quebec is getting underway. One digester is now cooking and rapid progress is being made on installations of two others. The wet end of one pulp dryer is also in. Rated output of the mill, which is expected to be in full operation by the end of this year, is 40,000 tons of prime, strong unbleached sulfite market pulp.

Although production at Anglo-Canadian has been running about 10 percent higher in 1951 than in 1950, it is believed the company is planning to increase output by another 10 percent during 1952.

Company estimated earlier that its 1951 production would be 220,000 tons of newsprint, 43,000 tons of sulphite pulp and 20,000 tons of paperboard.

PROPOSED MILL FOR TEXAS

TYLER, Tex.—Construction of a $2,500,000 paper mill is proposed for the Tyler area, according to J. A. Johnson, an official of Superior Paper Mills, Inc., of Tyler.

Mr. Johnson, one of three officials of the new corporation, told a Tyler group that the mill would produce top-quality paper and use a "floating" process in de-inking used paper in the production of newsprint.

Finances have been arranged, he said, and the only remaining problems are those of location and an allocation schedule for various newspapers interested in the mill.

ANGLO-NEWFOUNDLAND PLANS

OTTAWA—Anglo-Newfoundland Development Co., which has increased its productive capacity this year over last year by about 15 percent, is expected to increase its capacity another 10 percent or more during 1952.

GET ST. JOE CONTRACT

DETROIT, Mich. — Cummins & Barnard, Inc., of Ann Arbor, has been awarded the engineering contracts for a $25,700,000 expansion program at the St. Joe Paper Co. at Port St. Joe, Fla. The program will triple the daily output from 400 tons to 1,200 tons daily.

B. C. INCREASES WAGES

Four thousand workers in pulp and paper mills in British Columbia will now operate on a basic rate of $1.40 per hour. Both workers and companies have accepted a unanimous conciliation board recommendation, which has settled a prolonged dispute. This settlement, however, has no bearing on the strike of 300 employes of two paper converting plants in Vancouver, which has been in progress at the moment of writing for over a week.

It is the first industry-wide contract in the primary pulp and paper industry in British Columbia, and its settlement will bring the 40-hour week into the industry, with the understanding that it will be instituted as soon as practicable.

Overtime rates of time-and-one-half for work over 40 hours will be paid. Operations are now on a 42-hour basis. The agreement means a 16½ percent increase, with a minimum boost of 22 cents per hour.

A cost-of-living bonus of one cent for each 1.3 point government index rise, based at June 1, and reviewed every four months, was negotiated previously. This clause already accounts for another 4-cent boost.

Companies effected are Alaska Pine & Cellulose; Bloedel, Stewart & Welch, pulp division; Powell River Co.; Howe Sound Pulp MacMillan Export Co., pulp division; and Columbia Cellulose.

SODA ASH PLANT RUMORED

OTTAWA—A huge chemical plant to produce soda ash may be established at Antigonish in Nova Scotia area. A large deposit of salt beside a bed of high-grade limestone, together with vast coal supplies available nearby in Cape Breton or Picton, may be used for such soda ash production.

It is understood that negotiations are now proceding to establish this soda ash plant in Nova Scotia, though no companies have been identified as engaged in these deals. The plant may produce approximately 200 tons daily and require an investment of about $6 millions. Sole producer of soda ash in Canada at present is Brunner Mond Canada Ltd., Amherstberg, Nova Scotia.

BARK REMOVAL AT CROSSETT

CROSSETT, Ark. — The Crossett Co., of which P. F. Watzek is president, will save the equivalent of 14,000 cords of pulpwood annually by removal of bark before sawing logs.

"At present," Mr. Watzek explained, "bark left on slabs prevents their use for paper making and are used to produce steam for sawmill operations."

PEOPLE

LOUIS J. HOFFMAN, formerly business manager of the St. Louis *Star-Times*, has been appointed vice-president of Central States Paper and Bag Co., 5221 Natural Bridge, St. Louis, Mo. His duties at Central States will include direction of personnel, general safety programs, plant protection, employe welfare plans and assist in sales training.

EDWARD J. MARONEY, general sales manager, has been appointed a vice-president of United States Plywood Corp. Mr. Maroney's promotion climaxed 17 years' service with the company, which he joined in 1934. He was elected a director in 1938. From 1941 to 1943 he managed United States Plywood's Philadelphia branch.

DIRTECS provide the most effective barrier to the dirt that's so prevalent in paper stock today. You can see the dirt it collects, and remove it quickly and completely. It cannot get back into the system.

DIRTECS also guard your machine wires against those sharp, gritty particles that wear them out before their time.

To maintain maximum output of dirt-free paper, you need DIRTECS.

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

RICHARD C. BURTON has been named vice-president of operations of Valley Containers, Inc., new Youngstown subsidiary of Ottawa River Paper Co., Toledo. Mr. Burton also was elected a vice-president of Ottawa River Paper.

GLENN W. McPHERSON has been appointed assistant to vice-president and managing director of Alaska Pine & Cellulose Ltd. (Vancouver).

EDWIN G. MINKLEY has been named office manager and purchasing agent of the Mt. Tom, Mass., plant of Doeskin Products, Inc.

Other promotions by the Doeskin Co. include JOSEPH ALLEN from general superintendent at Mt. Tom to the plants manager's post; JOHN J. DELANEY from department foreman to general superintendent of the paper manufacturing and conversion departments at Mt. Tom. WALTER DEMPSEY has been promoted from plant manager of Doeskin's Wheelwright, Mass., division to general plant manager for both the Wheelwright and Mt. Tom divisions. No successor has been named to the spot of general plant manager for all three Doeskin divisions. JOHN D. McCRYSTLE resigned that position in the recent shakeup.

LEE TRENHOLM, advertising and public relations manager of Provincial Paper, Ltd., subsidiary of Abitibi Power & Paper Co., Ltd., has been appointed advertising and public relations manager of the two.

THOMAS L. STIRLING has joined the La Salle Paper Co. as vice-president in charge of the book paper department. From 1930 until the war he was with the Paper Makers Chemicals division of the Hercules Powder Co. during which time he was in Kalamazoo and in Holyoke and also for three years sales manager of Paper Makers Chemicals Ltd., a British subsidiary located in Erith, Kent, England. After the war he joined the Oxford Paper Co. as mill manager of the Oxford Miami Paper Co. at West Carrollton, Ohio, and was transferred in 1949 to Chicago as assistant manager of Western sales for that company.

ROBERT W. (BOB) STEVEN, papermill consultant of Los Angeles, Calif., has left on an extended trip to Canada, France and Sweden in the interests of his clients. He states that plans are underway for a new, large and completely modern paperboard mill in Sweden. He will return to his office about October 28.

MICHAEL J. HAWKINS, traffic manager and assistant purchasing agent at Bird & Son, Inc., East Walpole, Mass., has passed the 45-year mark of active service with the company. In recognition, fellow executives at Bird & Son honored him with a banquet at the Parker House, Boston.

TRUE M. AVERY retired from Union Bag & Paper Corp. as of September 1. Mr. Avery was vice-president of the company and manager of its Machinery Design Department.

A graduate engineer of Iowa State College, Mr. Avery joined the Union Bag organization in 1907. In 1930 he was made Manager of Factories, and he held this post until 1940. In 1936, Mr. Avery was appointed a vice president and continued in this capacity until his retirement.

Mr. Avery has been granted many individual patents relating to inventions and improvements in paper converting machinery. One of his most important developments was the Photocell Compensator. This device made it possible to convert pre-printed paper in perfect register and at high speeds on the bag machine. This innovation was so valuable to the bag industry that Union ultimately licensed the General Electric Co. to use and sell compensators to other members of the bag industry. It has since been widely used all over the world, not only on bag machines but also on printing presses, cutters, side register control and a host of other converting equipment.

One of his newer patents is an intricate machine which automatically forms and applies creped paper handles to Union's Pikup bag in one continuous high speed operation. Another of his recent contributions was the working out of a new machine to produce Union's patented Vent-Vu bag, a novel paper bag having a cotton mesh window on its front surface.

EDWARD B. BEEKS recently joined the Chicago branch sales office of American Coating Mills, folding carton division of Owens-Illinois Glass Co. Mr. Beeks was formerly with Shellmar Products Co.

GERARD E. VENEMAN, formerly of the New York office, and L. A. GARDINER, Nekoosa's West Coast representative, have been assigned to the Chicago office of Nekoosa-Edwards Paper Co.

Replacing Mr. Veneman in the New York office is MARVIN E. LOVE.

Succeeding Mr. Gardiner on the West Coast is ROBERT C. FARNSWORTH.

FORREST B. SMITH has been promoted from superintendent of power and maintenance to general superintendent, Utilities and Maintenance, of the Chickasaw Mills of Hollingsworth & Whitney Co. THEA C. BANNISTER was advanced from assistant pulp mill superintendent to pulp mill superintendent; CHARLES D. INGRAM, from chief chemist to technical superintendent; OGDEN W. JERVIS, from assistant power engineer to superintendent of power; WILLIAM J. ALLEN, from power plant foreman to assistant superintendent of power.

ROBERT W. FOWLER, president of the Canadian Pulp and Paper Association, is among the speakers who will address the 23rd Annual Boston Conference on Distribution at the Hotel Statler, Boston, October 15-16. Daniel Bloomfield, of the Retail Trade Board of the Boston Chamber of Commerce, director of the conference, announced September 8 that more than a score of leading authorities on business would address the conference, which is sponsored by the Retail Trade Board, in cooperation with the Harvard Business School, Boston University College of Business Administration, Massachusetts Institute of Technology and leading university schools of business and national trade associations in other parts of the United States and in Canada.

ROLAND A. SHARP has been appointed jobber division manager of the sales department of American Tissue Mills. Mr. Sharp was formerly mid-South district manager of sales for the Sealright Co. JOHN T. TURNER, of Holyoke, has been named specialties and export division manager. Mr. Turner was formerly assistant sales manager and has been with American Tissue for 31 years.

EUGENE D. SERAPHINE has joined Engineering Manpower Commission of Engineers Joint Council in the capacity of assistant executive secretary, where he will be responsible for public relations.

Mr. Seraphine, former news bureau head for Colonial Airlines and public relations representative for American Overseas Airlines, will assist the Engineering Manpower Commission in their current national drive aimed at increasing engineering enrollments and utilizing present limited amount most effectively.

BEAVEN W. MILLS has been named sales manager for Gairvure cartons by Robert Gair Co., Inc., New York, manufacturers of folding cartons, paperboard and shipping containers.

HON. CLARENCE WALLACE has been named a director of the Powell River Co. (Vancouver).

FARREL® TWO-WHEEL, SWING-REST ROLL GRINDERS are equipped with a cam-type crowning device which will produce any crown required, for any length of calender roll. Easily and quickly set, the device requires no readjustment by the operator during the grinding operation.

This means that, when you decide to increase the leverage on the top roll of a stack, you can figure the crown*, and then set the device with the assurance that the grinder will automatically produce an accurate crown, based on the true deflection curve. A single machine can be used to crown all rolls of any length within its capacity.

This is only one of the outstanding features of the FARREL TWO-WHEEL, SWING-REST ROLL GRINDER—*the most accurate mechanism yet devised for grinding calender rolls.* For the full story, send for a copy of Bulletin 118. No cost or obligation.

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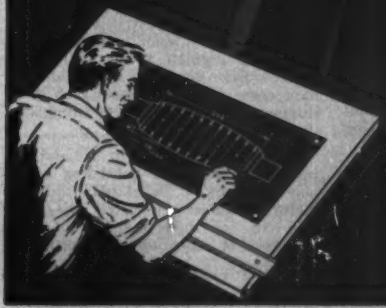

* DO YOU FIND IT DIFFICULT TO FIGURE THE CORRECT AMOUNT OF CROWN? It is a hard thing to do by the usual deflection formula, because of the loading and the modulus of elasticity.

If you are having trouble, we shall be glad to assist you—without charge or obligation.

GOVERNMENT GOSPEL

Canadian Labor and Wages

OTTAWA—The latest nationwide survey by Canadian Government reveals that there was a total of 73,364 employees reported in the paper products manufacturing industry at May 1 this year and the labor costs of such manufacturers continue to increase, rising to an average weekly salary and wage of $59.08 at May 1 this year as compared with $58.07 at April 1 and $53.50 at May 1 a year ago, with the average hourly earnings in this industry reaching 120.8 cents at May 1 as against 119.7 cents at April 1 and 107.8 cents at May 1 last year.

There were 63,294 wage-earners in this industry at May 1 this year and their average weekly wages jumped up to $56.78 compared with $55.30 at April 1 and $50.67 at May 1 last year. The average hours per week was 47.0 at May 1 as against 46.2 at April 1 and 47.0 at May 1 a year ago.

The greater activities in the industry are reflected in the rise of employment to 177.4 at May 1 as against 175.4 at April 1 and 165.2 at May 1 last year, with payrolls standing at 390.2, 379.2 and 328.9 respectively on these dates, based on 1939 being 100. More men entered employment in the industry, according to this latest survey, with the proportion of male employees rising to 85.7% against women 14.3% at May 1 this year, whereas a year ago on this date men comprised 85.4% and women 14.6%.

Pulp and paper mills report 51,062 employees at May 1 this year and also state that their labor costs moved up, rising to an average weekly salary and wage of $64.34 at May 1 compared with $63.41 at April 1 and $58.37 at May 1 a year ago, with the average hourly earnings in these mills jumping up to 128.4 cents at May 1 as against 127.2 cents at April 1 and 114.6 at May 1 last year. Average hours per week in the mills was 48.3 at May 1 compared with 47.7 at April 1 and 48.7 at May 1 a year ago.

There were 46,203 employees in the pulp and paper mills classified as "wage-earners" and their average weekly wages rose to $62.02 at May 1 as against $60.67 at April 1 and $55.81 at May 1 last year.

Employment in pulp and paper mills also indicated more activity in such operations since employment rose to 166.2 at May 1 as against 163.1 at April 1 and 152.9 at May 1 a year ago, with payrolls standing at 378.2, 365.7 and 315.6 respectively on these dates, based on 1939 being 100. Of the 51,062 employees in these mills, 48,495 were men and 2,567 women at May 1 this year or 95% men and 5% women, whereas a year ago on May 1 men comprised 94.8% and women 5.2%.

L. C. Stewart Heads Facilities Branch

WASHINGTON, D. C.—Appointment of Leroy C. Stewart, Dow Chemical Co. sales official, as chief of the Facilities Branch of the Chemical Division, NPA, was announced this week by the latter agency. Mr. Stewart has been manager of the sales office of Dow Chemical at Atlanta, Ga.

The branch has been established to aid the chemical industry in meeting required production programs, and will include such matters as priorities assistance for equipment and containers, as well as other emergency matters.

The newly appoined chief of the branch served during the World War II period as manager of Dow's Washington office.

C/N For Increased Sulphur Production

WASHINGTON, D. C.—Extensive increases in sulphur production facilities are provided for in the latest list of certificates of necessity to be announced by NPA.

In each case the full amounts applied for were certified and a high percentage, 80 percent in all cases, allowed. Among approvals were:

Richardson Carbon Co., Odessa, Texas, $130,830; 80 percent; Phillips Chemical Co., Ector County, Tex., $1,741,000; Shell Chemical Corp., Houston, Tex., $500,000; Gulf Oil Corp., Port Arthur, Tex., $586,390; Hancock Chemical Co., Long Beach, Calif., $250,000.

CMP Developments

WASHINGTON, D. C.—NPA began distribution of application forms for 1st quarter 1952 allotments of copper, steel and aluminum which must be filed by October 1. Forms went to manufacturers of standard types of industrial and household products;

M-57 amended to re-define end uses of vegetable tanning materials including raw materials, to insure their use for following only, among others;

In manufacture of pharmaceuticals, water treatment products, and tannic, gallic or pyrogallic acid, etc.

Amended M-22 (Aluminum) to channel aluminum scrap more closely into rearmament program;

Amended M-66 (graphite) to eliminate inventory restrictions and permit consumers to follow normal purchasing procedure;

Extended to September 25, time in which unrated orders for steel, copper, and aluminum may be converted to authorized CMP orders; another amendment excludes from use of defense rating preference, controlled materials orders from certain public works of Army, Panama Canal, etc.

Survey Sulfur Sources

WASHINGTON, D. C.—Investigations are reported to be under way following discovery this summer of sulfur traces by an oil company at two wells in Northern Manitoba, Canada. No subsequent report has been received here as to findings. The development was one of those reported from various parts of the world by American official sources, following the agitation over sulfur shortages.

Meanwhile, Canada's pulp and paper industry reportedly has become interested, as has the Dominion government, in the possibility of obtaining sulfur from pyrites and deposits in close proximity to the Dominion's paper mills, and extensive surveys have been made, according to another American report received here.

In this direction, a further report from American sources in London states that 18 plants in the United Kingdom are under construction or being converted for production of sulfuric acid from pyrites or anhydrite. By 1954, this expansion is expected to increase production by 900,000 long tons, and by 1955, to permit reduction of sulfur imports by 50 percent.

Other developments in the search for new sulfur supplies, as assembled by various American official sources and reported here include:

Mexico — Purchase by management of the Guazama sulfur mine, near Cerritos of another mine in Zacatecas, which when fully exploited, will produce double the output of the first-named facilities; priorities for new machinery from the U. S. reportedly have been issued.

A U. S. firm has been awarded a contract to exploit deposits in Ecuador, it is officially reported, though the company was not named. This concern, says the report, will lease mines for 20 years and has agreed to install and operate a sulfuric acid plant with a daily capacity of 5 tons; in southern Peru, according to other American official sources, U. S., British and French capital is interested in development of deposits there.

Cuban government has assigned quotas to importers of U. S. sulfur, according to an August despatch from that country, although it is not indicated that the Cuban authorities will attempt to regulate sulfur distribution from other sources; some supplies have come from Mexico, but no more shipments from there are anticipated this year.

Chilean supplies are in demand for export in quantities exceeding available amounts, it is stated; the two major producers reported they are sold out for the remainder of 1951 and are not accepting other orders.

Italy is expanding production with help of its government's subsidy.

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FLOKOTE produces a surface to match the finest presswork. Glossier. Brighter. Stronger. And pick-resistant against the tackiest inks.

FLOKOTE is an exceptionally stable oxidized starch . . . light in color . . . opaque. Good flow characteristics help to obliterate brush marks. High water retention makes coatings more uniform. Just the right combination of desirable properties for coating!

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Top quality printing papers or similar stocks? Machine or brush coated?

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OPS Names C. P. Malmstrom

Carl P. Malmstrom has been appointed Deputy Regional Director of the Office of Price Stabilization for New York State and northern New Jersey.

Mr. Malmstrom succeeds Julius S. Wikler who has been promoted to the post of District OPS Director for New York City and adjacent counties.

Mr. Malmstrom's appointment is a promotion from his present post as Regional Executive Officer for OPS in charge of management and administrative services, budget, fiscal and personnel. He came to OPS last November from service in key posts with other federal agencies, most recently as Chief of the Personal Property and Utilization Division of the General Services Administration here and, prior to that, New York regional director of the War Assets Administration at the height of its multi-million dollar disposal task after World War II. He began his federal service in 1935 in the Emergency Relief Administration, and has variously served the Works Projects Administration, the U. S. Department of Commerce and U. S. Treasury, the RFC and WAA.

Paper Pricing

Detailed recommendations for provisions of a proposed tailored regulation for sulphite and bleached kraft papers were made by members of the subcommittee of the Sulphite Paper Industry Advisory Committee at their second meeting with OPS officials.

Under the proposed regulation dollars and cents ceilings would be spelled out for a number of key items, f.o.b. mill, and prices for other weights and grades would be established by customary differentials.

It was proposed to spell out ceilings on the following:

Untreated dry finish butchers paper, 40 lb.; machine treated butchers paper, 40–47 lb.; machine finish grocers and butchers paper, 30 lb.; envelope Manila, 20 lb.; regular bleached waxing paper, 25 lb.; and bleached bag paper.

It was suggested that prices be fixed at levels equal to or greater than the prices established under the Manufacturers' General Ceiling Price Regulation, CPR 22, on the bulk of production of each key item.

The industry has been asked to supply price lists covering the pre-Korea period, ceilings under the General Ceiling Price Regulation and CPR 22 ceilings.

There was considerable discussion and lack of unanimity on the question of precisely what papers should be covered by the regulation.

It was suggested that the coverage include such papers as butchers Manila, dry finish grocers, imitation parchment, water finish butchers, blasting, cartridge, die wiping, gumming, newspaper and mailing wrappers, ribbon and ticker paper, shell, silk protection, textile papers, tympan, cash register, foil backing, music roll, machine treated, oiled Manila, soap wrapper and dry wrapping papers.

The meeting was conducted by John E. Becker, business analyst for bleached papers.

Bureau of Standards Report

WASHINGTON, D. C. — Bureau of Standard's Annual Report for 1950 has been completed and is ready for distribution. It is obtainable from the Government Printing Office, Washington, at 50 cents per copy.

One of its accomplishments the past year was development of an electric currency counter to enable the Treasury to count old paper money.

Increased Danish Casein Output

WASHINGTON, D. C.—Danish casein output rose substantially in the first five months this year to 7,900 metric tons total, 4,700 above the comparable 1950 months, according to an American official despatch.

Chestnut Extract Wood Ceiling

The Office of Price Stabilization today announced a ceiling price of $12.00 per cord (128 cubic feet) on chestnut extract wood.

The ceiling applies to all purchases of chestnut extract wood by members of the chestnut extract industry wherever located in the United States. The industry centers in North Caroline, Tennessee, Virginia, West Virginia, Alabama, Georgia and Kentucky.

The ceiling, prescribed in Supplementary Rtgulation 58 to the General Ceiling Price Regulation, GCPR, is effective September 12, 1951, and is figured f.o.b. car or delivered to mill according to the seller's practice during the period January to June, 1951.

Chestnut extract wood is the primary raw material used by the chestnut extract industry in the production of tannin, a vegetable tanning material used in the processing of leather. A blight some years ago destroyed all chestnut trees, and the extract wood is obtained by cutting dead timber.

The tannin is obtained by a boiling process from the chipped wood, and thereafter the spent chips are generally used in the manufacture of paperboard.

The prevailing price for most sellers of chestnut extract wood under the GCPR is at the same level as the spelled out ceiling price, so the effect of the regulation merely will be to make this ceiling applicable to all producers.

H. J. Sissons Named Coordinator

OTTAWA—Henry J. Sissons, 46, Assistant to the General Manager of Ontario Hydro Commission, has been appointed by Canadian Government to the key Department of Defense Production as Coordinator of Materials to weld into one organization the work of controllers of individual scarce materials and supplies, including the pulp and paper industry interests.

Fuel Oil Investigation

The OPS announced today the start of a compliance investigation covering the prices received and paid for petroleum products being exported from the East Coast of the United States.

Preliminary reports to OPS indicate that some East Coast suppliers whose prices were frozen under GCPR and who were not, at that time, selling petroleum products for export have, since mid-June, 1951, been offering and delivering these products for export.

Many of these suppliers who have entered this new market are independent jobbers whose marketing practices heretofore have been in furnishing fuel oil to householders and industries in New York and New England.

OPS further announced that, in accordance with the present ceiling price regulations, a supplier desiring to sell petroleum products for export must make application for ceiling price for such sales if no ceiling price had been previously established. The OPS policy of establishing equivalent prices for export and domestic sales of petroleum products is designed to prevent a drain of petroleum products from the United States at the expense of the domestic consumer.

This export situation, if allowed to continue, may mean a shortening of supply in some of the area along the Atlantic Seaboard. Requests have been made to OPS for an increase in ceiling prices for domestic sales by independent jobbers in this area to increase the supply there. These increases would have to be paid by the individual householder or consumer. It is hoped such increases can be avoided by retaining available area supplies for sale to domestic users. This price compliance activity is based on data showing that of the 2,633,500 barrels of No. 2 and gas oil exported from North Atlantic ports during the period under survey, independent jobbers who ordinarily sell mainly to domestic users, supplied 2,373,500 barrels, or approximately 92 percent.

Philippine Imports Regulations

The information bulletin for the guidance of traders importing ECA financed commodities into the Philippines, has been amended to conform to the proclamation of the Philippine President eliminating the need for securing import licenses for ECA financed commodities. The following is the text of the procedure outlined:

"Goods to be imported under ECA Procurement Authorizations shall not be licensed by the Import Control Commission. Applicants for such goods, however, should apply to any authorized agent of the Central Bank of the Philippines for the necessary letters of credit, the authorized agent concerned to apply in turn to the Central Bank of the Philippines for the covering Procurement Sub-Authorizations."

For fast, on-machine scouring, as low as 2-3 lbs. Syntergent K to 50 gals. water may be used to make up either an acid or an alkaline wash. Felt is run at full width.

FELTS THAT LAST SAVE MONEY, INCREASE OUTPUT

You'll find Nopco Syntergent* K felt washing compound an exceptionally effective felt preserver. We have called upon our wide experience as a leading supplier of textile chemicals, and our close association with the actual problems of producing good felts for the paper maker, to formulate a compound that does an outstanding felt cleaning job . . . that helps to reduce equipment costs and increase production. (Remember: Clean, well cared for felts can actually increase output by as much as 5 per cent.)

Syntergent K mixes readily with warm or cold water in all concentrations, to provide solutions which give copious and persistent lather and have excellent detergent and wetting characteristics. It is stable to both mild alkalis and acids, and thus can be used with either an alkaline or acid wash. It is likewise compatible with soap solutions.

You'll find Syntergent K very effective, also, for wetting out and conditioning brand new felts.

We shall be glad to supply you with formulas for *on*-machine and *off*-machine washing of press felts, wet felts and new felts. Our Technical Service Division stands ready to assist you *in your mill*, to make sure you obtain the best results as economically as possible.

Used in conjunction with soda ash, Syntergent K is ideal for cleaning vats, piping systems and screens during grade changes.

After running felt 10 - 15 minutes, fresh water showers carry away embedded soil in less than 5 minutes. The Syntergent K washes out freely and completely.

NOPCO CHEMICAL COMPANY

HARRISON, NEW JERSEY

Branches: Boston, Chicago, Cedartown, Ga., Richmond, Calif.

Effect of Additives on Multi-Fiber Dispersions

E. F. Thode, J. W. Beamesderfer, and R. D. Parsons[1]

University of Maine, Orono, Maine

Abstract

A study of the effect of various furnish additives on the dispersion of fibers in handsheets is reported. The criterion of dispersion here employed is the aerosol filtration efficiency of the paper. The only other physical property correlated with the chemical additive treatment is the tensile strength of the paper.

It is thought that this use of filtration efficiency principally reveals the degree of dispersion of the fine fibers in a mixed fiber sheet. Thus, in part, the masking effect of flocculation caused by the purely mechanical entanglement of longer, more coarse fibers is avoided. With this concentration of attention on the finer fibers, purely chemical factors involved in flocculation may be studied.

It is concluded from the results herein presented that the multi-fiber pulp suspensions used behave in a manner similar to negative, hydrophilic colloids as regards dispersion and coagulation. It was found that, although improvement of dispersion of fibers in such suspensions could be accomplished by addition of synthetic anionic dispersing agents, a severe loss in tensile strength of the paper accompanied such improvement in dispersion. This loss in tensile strength was overcome by addition of carboxymethylcellulose as a bonding agent.

Introduction

Much attention has been devoted to the mechanical aspects of the formation of a sheet of paper, particularly with regard to the period when the stock is flowing over the wire, the draining period, and subsequent couching and other forming operations. Similarly, considerable work has been done with relation to the physico-chemical aspects of paper formation, contemplating the physical and chemical changes which may go on during draining and subsequent drying. Realization has come to most who are concerned with work on formation that the phenomenon of creation of a sheet of paper is both mechanical and chemical, the predominance of one or the other depending largely on the individual circumstances involved. In this connection, some work has been reported on colloid-chemical factors in the early stages of sheet formation. The significance of these results has been challenged by other investigators, who claim that this period of sheet formation is one in which mechanical factors appear to predominate.

In the course of an investigation at the University of Maine into the possible improvement of filter material, it became desirable to investigate the possible effect of colloidal factors on sheet formation. The object of the investigation was to obtain information so that the quality and uniformity of the material might be improved on a production basis. Although this original objective is of little general interest, it is thought that the results reveal a previously unreported aspect of the mechanism of sheet formation.

Colloidal Coagulation Theory

Recent interest in the effect of surface phenomena on pulp suspensions has resulted in considerable work on the effect of additives on the coagulation or flocculation of such suspensions. The most comprehensive investigation of this type that has come to the attention of the authors is that of Mason and coworkers (1). An excellent review of current and previous work may be found in recent papers by Mason (1, 2, 3). In summary, it has been found by previous investigators, notably Woolwage (4) and Erspamer (5) that the same additives which would be expected to coagulate negative hydrophilic colloidal suspensions flocculate pulp suspensions and adversely affect the formation of paper therefrom. Likewise, agents known to disperse such colloidal suspensions reduced the flocculation of pulp suspensions and improve the formation of resultant paper. It was concluded by Erspamer that the electrokinetic potential (zeta potential) of the fibers and adsorbed hydrous films both play a part in the flocculating or deflocculating tendency of pulp suspensions.

It is an oversimplification to state that in the case of fiber suspensions such colloidal factors are usually of prime importance in determining the flocculating tendency of the suspension. Quite the contrary, in most cases, mechanical factors predominate. However, even in cases where mechanical forces are most active it is possible that colloidal factors influence the flocculation of the pulp and the properties of the resultant paper.

In the investigation here reported, it was found that mechanical factors were important, but, because of the nature of the mixed fiber furnish used, striking variations in paper properties were obtained by employing various colloidal phenomena involving dispersing gents and bonding agents.

Experimental Procedure

All of the data here presented were obtained from handsheet studies employing a mixed fiber base-stock of constant composition. The components of this stock were cotton flock, causticized hemp, causticized esparto, and asbestos fiber. The dimensions of these fibers as determined microscopically are listed in *Table I*.

The laboratory procedure followed in the preparation of handsheets for this study was as folows: Since no two batches of mixed fiber stock yielded identically simlar results, a blank (of untreated stock) was made from each batch for purposes of comparison. The data in *Table II* were obtained on handsheets made strictly according to TAPPI Standard 205-m 47. The remainder of the data were obtained on handsheets made by a modification of this method wherein the consistency of the stock over the screen was increased to the point that only two liters of stock were present in the deckle box before forming the sheet, instead of the customary seven liters. Also use of the drying discs was eliminated. The reason for these changes will be presented later. All sheets were made to the same basis weight; all activities were introduced immediately prior to the one minute mixing period unless otherwise noted. Tensile strengths were obtained on a Scott x-5 Tensile Tester on samples of one inch width. Each

TABLE I.

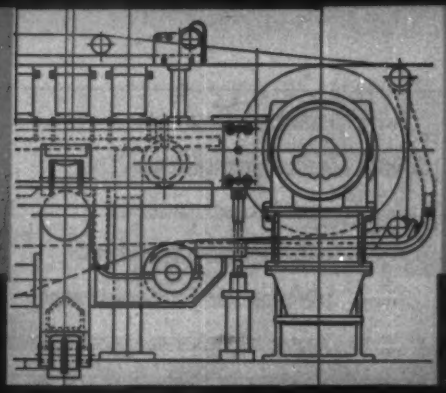
Characteristics of Fibers Used

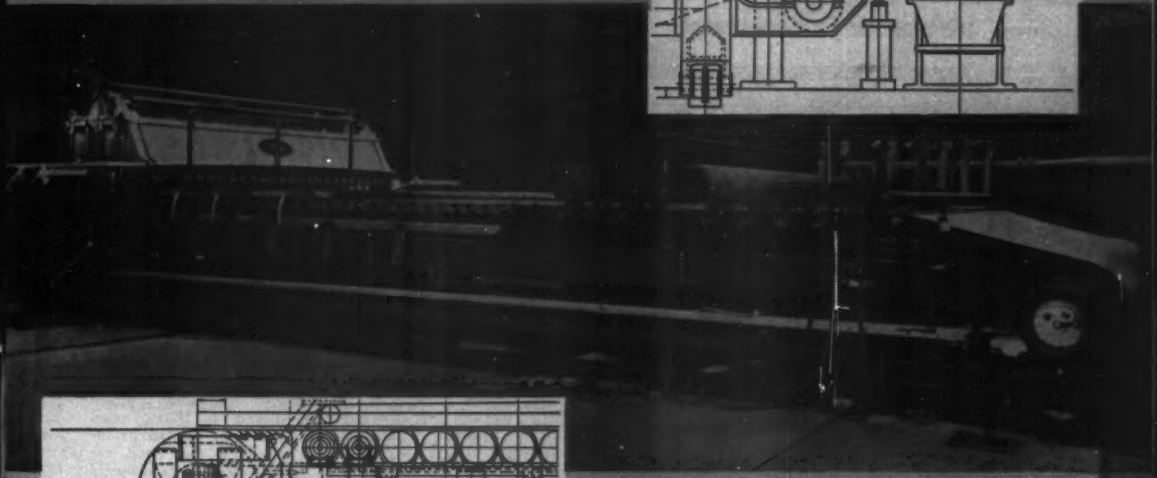
Fiber	Diameter (microns)	Length (mm.)
Asbestos	0.55	0.1
Cotton Flock	0 - 20	0 - 3
Esparto, Causticized	10	3.2
Hemp, Causticized	15 - 20	5 - 7

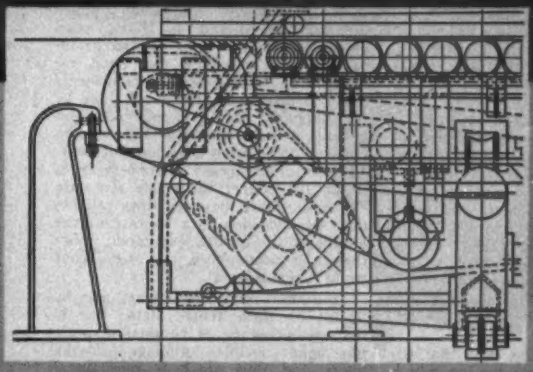
[1] Present address: Hollingsworth and Vose Company, East Walpole, Mass.

At Right: In the improved "Rapi-Drape" design, the Suction Couch Roll is supported from main Fourdrinier frame as shown. Eliminates need for cantilever jacking arrangement on drive end. Simplifies bearing design and permits use of similar bearings front and back. Eliminates overhung concentrated load on back bearing of suction roll.

Below: Breast Roll is supported from main Fourdrinier frame in the improved "Rapi-Drape" design as shown. Breast Roll, doctor and forming board are raised and lowered as a unit by special hydra-motor. Provides more slack and safer operation when installing new wires. Simplifies and speeds up entire operation.







Above: Fourdrinier Part of "Rapi-Drape" design not including improvements shown in line drawings. Installation at P. H. Glatfelter Co., Spring Grove, Pa.

Improvements IN "RAPI-DRAPE" WIRE HANDLING

Recent changes in the "Rapi-Drape" system have simplified and speeded up the entire wire changing operation.

Suction Couch Roll and Breast Roll are now supported from the main Fourdrinier frame, as illustrated and described above. There is less manhandling. More clearance for draping wires. Less chance of wire becoming wrinkled during installation.

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Hollingsworth & Whitney Company, Mobile, Ala.
Southern Advance Bag & Paper Co., Hodge, La.
St. Mary s Kraft Corp., St. Mary s, Ga.
Union Bag & Paper Corp., Savannah, Ga. (2)
Hudson Pulp & Paper Co., Palatka, Florida (2)
Southern Paper Board Corp., Port Wentworth, Ga.
Fibreboard Products Inc., East Antioch, Cal.
St. Regis Paper Co., Tacoma, Wash.
Calcasieu Paper Co., Elizabeth, La.
San Rafael Paper Co., Mexico, D. F.
Papierfabrik Utzenstorf, Switzerland
National Newsprint Co., Ltd., India

On order for:

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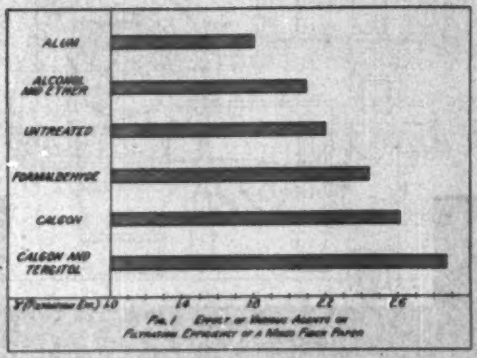

FIG. 1 EFFECT OF VARIOUS AGENTS ON FILTRATION EFFICIENCY OF A MIXED FIBER PAPER

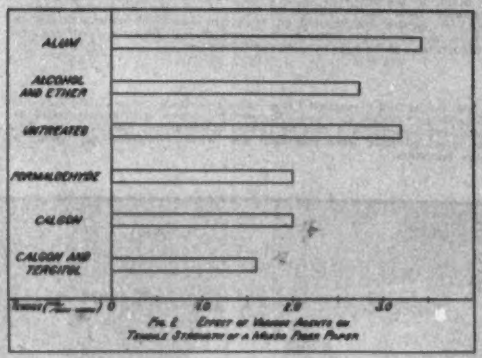

FIG. 2 EFFECT OF VARIOUS AGENTS ON TENSILE STRENGTH OF A MIXED FIBER PAPER

value represents the average of measurements on four handsheets.

Aerosol filtration efficiency (γ) was obtained as follows: The pressure drop (ΔP) across an area of 100 sq. cm. of the sheet was measured at an average linear velocity of 850 cm. per minute. A simple manometer calibrated in millimeters of water was used. Subsequent to this, the same 100 sq. cm. area of sheet was used to filter an aerosol from a stream of air flowing at a velocity of 320 cm. per minute. The concentration of aerosol before and after passing the filter was measured with an appropriate photoelectric optical penetrometer. The particle size distribution and initial concentration of the aerosol were controlled within narrow limits, these limits being maintained for all the tests here reported. The fraction of aerosol passed by the paper (A) as determined in this test, together with the pressure drop previously determined, are used to calculate the filtration efficiency as defined by the formula:

$$\gamma = \frac{100(-\log A)}{P}.$$

It may be seen from this definition that the filtration efficiency here used is a function of the pressure drop through the sheet as well as the proportional amount of aerosol passing the sheet. This is a very important consideration, since it would appear obvious that a sheet of paper which effectively removes aerosol is useless as a filter for practical purposes if its resistance to air flow is extremely high.

Basic Experiments

Changes in filtration efficiency and tensile strength for a multi-fiber filter material brought about by the use of coagulating and dispersing agents are shown in the data listed in *Table II*.

As graphically illustrated in *Figure 1*, coagulating agents have an adverse effect on filtration efficiency while dispersing agents have a markedly salutary effect, as would be expected. It cannot be overemphasized that filtration efficiency is an excellent measure of the degree of dispersion of fiber in a paper, especially in a mixed fiber paper. Because filtration is believed to occur through centrifugal action on aerosol particles as the air passes through minute, tortuous passages in the paper (6), the most effective filtration would be expected to occur when the various component fibers, long and short, large and small, were completely and uniformly dispersed and randomly oriented throughout the paper. It may be seen that if this uniform dispersion is not obtained as, for example, when the finer fibers aggregate around some of the coarser, relatively large fibers, straight passages or pores may open up in the paper, permitting easy passage of the aerosol with little filtering effect.

It appears from these data that addition of trivalent aluminum ion, which has a marked coagulating effect on negative colloidal suspensions because of the decrease in zeta potential it induces, has a very adverse effect on filtration efficiency, indicating a considerable tendency toward coagulation of fibers. On the other hand, dispersing agents such as Calgon (trade name for a sodium metaphosphate product) and Tergitol #7 (trade name for the sodium sulphate of 3.9 -diethly-tridecanol-6) improve the dispersion of fibers over ordinary conditions, presumably because of a lessened tendency toward coagulation brought about by an increase in zeta potential and an increase in the protective action of the adsorbed hydrous film.

Figure 2 highlights another interesting aspect of the situation. If formation of a paper sheet depends on *both* mechanical matting and chemical coagulation, then a well dispersed and therefore poorly coagulated paper might be expected to have poor strength. Inspection of the bar graph in *Figure 2* will show that such appears to be the case for the handsheets made in this investigation. It may be seen from the data of *Table II* that in general tensile strength follows the opposite trend from filtration efficiency. The better dispersed the fibers in a paper, the poorer its tensile strength. These data are basically less reliable than the filtration data because of the nature of the tensile test itself; nonetheless a pronounced and significant trend is evident.

Two interpretations, at least, may be placed on these tensile data; one is that the presence of residual dispersing agent enables slippage of the fibers and thus weakens mechanical bonds; the other is that the presence of the dispersing agent eliminated the factor of strength supplied by chemical coagulation leaving only the mechanical factor. The second interpretation can also explain the increase of tensile brought about by the use of alum by inferring that the alum improved chemical coagulation. Any purely mechanical theory such as is implied by the first interpretation does not account for this.

TABLE II.

Effect of Various Agents on Paper Properties

Additive	(Amount)	Pressure Drop Δp (mm H_2O)	Penetration A	Efficiency γ	Tensile (#/in.)
None		113	0.33	2.20	3.2
Alcohol & Ether	(25% + 3% by volume respectively)	91	1.25	2.12	2.8
Alum	(0.24g/g B.D. stock)	94	2.02	1.81	1.5
Formaldehyde	(2.5g/g B.D.)	106	0.26	2.44	2.0
Calgon (in beater)	(0.2g/g B.D.)	69	1.62	2.61	2.0
Calgon and Tergitol #7	(as before) (0.217g/g B.D.)	69	1.12	2.88	1.6

Study of Bonding Agents and Dispersing Agents

Following the same vein of thought as in the preceding experiments it was decided that a filter material of high degree of dispersion but retaining desired strength characteristics might be obtained by addition of some substance which might coat the fibers to give adhesiveness when dry yet not promote coagulation of the fiber suspension. Two such materials tried were car-

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boxymethylcellulose (Hercules CMC) and methyl cellulose (Dow Methocel). As tabulated in *Table III* and charted in *Figure 3*, it may be seen that the desired end is achieved by use of CMC but not by Methocel. In the series of experiments listed in *Table IV*, combinations of dispersing agents and bonding agents were tried in an effort to combine the strength improving qualities of carboxymethylcellulose with the improvement in dispersion brought about by the use of a dispersing agent. Unfortunately, Tergitol #7 seemed to lose its dispersing power in the presence of CMC but Triton 770, an anionic dispersing agent of similar chemical nature (sodium salt of alkyl phenoxyethyl sulphate), proved to be effective in the presence of moderate amounts of CMC. The optimum conditions found (0.1 g/g Triton 770 and 0.043 g/g CMC) represent an increase in filtration efficiency from 2.56 to 3.02 with no significant los in tensile strength.

The interpretation placed on these results is as follows: By the use of suitable agents, such as employed here, chemical coagulation may be prevented during the actual process of forming the sheet but a suitable chemical bond can nonetheless be developed on drying.

Discussion

One very interesting point about coagulation or flocculation is that in the absence of any widely accepted standard, coagulation is apt to be ill defined. Thus, the results of different investigators may appear to agree as a matter of fortuitous circumstance or may appear to disagree when the only disagreement is a matter of terms.

The results of this investigation appear to be in accord with those of Woolwage (4) and Erspamer (5) on some points and not in accord in others. A contrast of the techniques used to evaluate flocculation is necessary to an appreciation of these differences. Woolwage allowed previously agitated stock to flow through a glass tube at constant rate and measured the distance traveled before visually noticeable flocculation occurred. Erspamer made handsheets under varying conditions in the same type of handsheet machine used in this investigation and determined the flocculation in the sheets with a photoelectric formation tester described by Davis, Roehr, and Malmstrom (7). This tester rapidly scans a portion of the sheet (about 80 cm²) with a small cone of light and determines variations in opacity. Mason's elaborate device involves scanning of a pulp suspension by a light beam in a glass device similar to a rotating cup viscosimeter. He also uses an improvement on the photoelectric formation tester mentioned above.

It was observed in this investigation in a qualitative way that the appearance of good formation (i.e. little variation in opacity across the sheet) had very little to do with high filtration efficiency and therefore with the degree of dispersion of the smaller fibers. If anything, the optical appearance of good formation seemed to accompany poor filtration efficiency. From the standpoint of good looks, the best sheets made were those of untreated or alum treated stocks made exactly according to TAPPI Standard 205 m-47. Increase of the consistency in the deckel box to the point that only two liters instead of the customery seven were used over the screen resulted in a much worse looking sheet but accomplished a small but noticeable increase in filtration efficiency.

It should be pointed out that in this multifiber furnish there were present

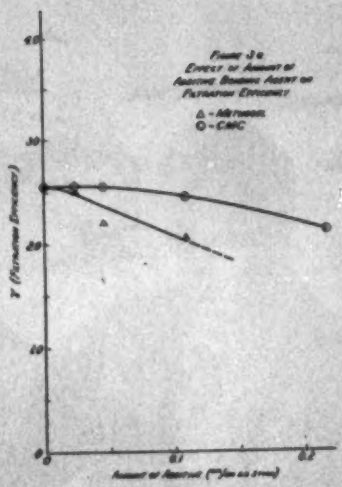


TABLE III.

Effect of Bonding Agents on Paper Properties[a]

Additive	Amount (g/g BD)	Pressure drop Δp(mm H_2O)	Penetration A	Efficiency γ	Tensile (#/in.)
None		86	0.71	2.56	1.8
CMC	0.0217	87	0.63	2.56	1.9
CMC	0.043	75	1.28	2.53	2.4
CMC	0.109	79	1.17	2.44	2.9
CMC	0.217	91	1.19	2.11	4.1
Methocel	0.0217	72	1.62	2.50	2.1
Methocel	0.043	97	0.73	2.21	2.6
Methocel	0.109	97	1.00	2.06	2.9

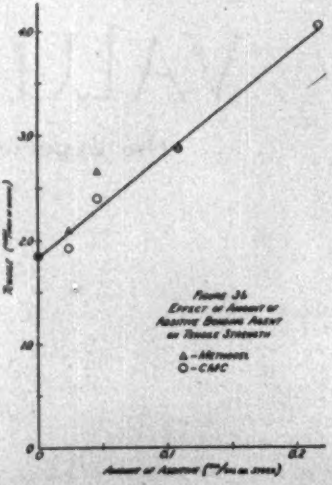
[a] All stocks treated with 0.02 g/g B.D. of Calgon.

TABLE IV.

Effect of Bonding Agents and Wetting Agents on Properties of Paper[a]

Additive	Amount g/g BD stock	Pressure drop Δp (mm H_2O)	Penetration A	Efficiency γ	Tensile (#/in.)
None		84	0.71	2.56	1.8
Tergitol[b] + CMC	0.043	82	0.82	2.56	2.3
Tergitol + CMC	0.109	85	0.67	2.57	2.6
Tergitol + CMC	0.217	99	0.54	2.33	3.2
Tergitol + Methocel	0.0217	93	0.49	2.45	2.4
Tergitol + Methocel	0.043	85	1.16	2.39	2.1
Tergitol + Methocel	0.109	102	0.73	2.13	2.8
Triton 770[c] + CMC	0.043	89	0.21	3.02	1.8
Triton 770 + CMC	0.109	68	1.76	2.65	2.1
Triton 770 + CMC	0.217	70	2.06	2.46	2.1
Triton 770[c] + Methocel	0.0217	69	1.82	2.74	1.5
Triton 770 + Methocel	0.043	62	2.32	2.74	1.5
Triton 770 + Methocel	0.109	70	1.38	2.61	1.8

[a] All stock treated with 0.02 g/g BD stock Calgon
[b] Added as 0.217 g/g BD stock of commercial solution
[c] Added in concentrated form 0.11 g/g BD stock



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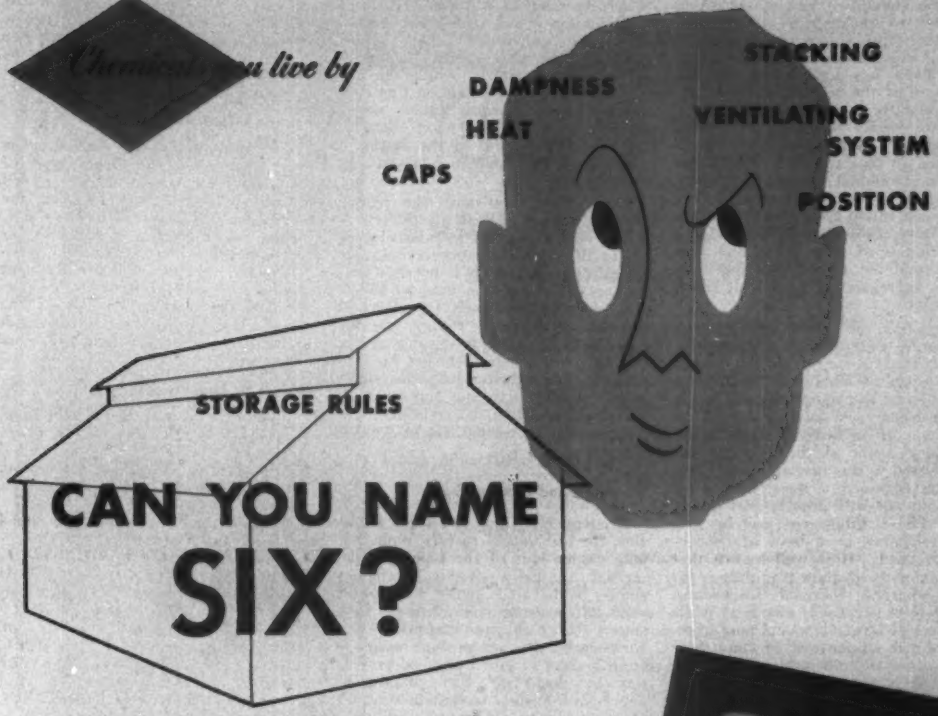

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a certain amount of long fibers which are prone to mechanical entanglement. Apparently, the presence of relatively large, loose mechanical aggregates of these fibers has little effect on the dispersion of the remaining fibers. By its nature the aerosol filtration test, therefore, seems to eliminate mechanical factors and gross mechanical coagulation so that attention may be focused on colloidal coagulation. The methods of other investigators do not accomplish this. Photoelectric formation testers obviously will record large loose clumps of long fibers and possibly would not record a slight tendency to aggregate on the part of short, fine fibers.

In general, the results of Erspamer agree quite well with the data of this investigation; for example the coagulating affect of alum and the dispersing action of the phosphates are points of agreement. Woolwage found no dispersing effect with a similar type dispersing agent as the Tergitol and Triton used in this investigation. Likewise he obtained a dispersing effect with alum and with deacetylated karaya gum. These differences may be partially explained on a basis of concentrations used. It is well known that small amounts of alum coagulate negatively charged colloidal suspensions (cellulose is negatively charged) while additions of larger amounts tend to redisperse the suspension, by converting the entire mass to a positively charged state. It is apparent that Woolwage was operating well up in this second range, while the concentration used in the present investigation was presumably in the coagulating range.

The fact that between them Woolwage and Erspamer found that deacetylated karaya gum and Methocel were dispersing agents whereas in this investigation it was found that Methocel had an unfavorable effect on filtration which may possibly be attributed to the method by which the test was carried out. Perhaps in this case the filtration efficiency test is not a true measure of dispersion, because clogging of the pores by the Methocel might mask an actual increase of dispersion.

The disagreement with the results of Woolwage regarding the effectiveness of wetting agents may possibly be due to differences in experimental technique. In this case, it is possible that the method of addition used by Woolwage differed sufficiently from ours as to markedly affect the results. On the other hand, direct comparison may not be fair. Woolwage identifies his dispersing agent only as a sulphonated alcohol; possibly it is not fair to make the assumption that the respective materials used are comparable in dispersing action.

Summary and Conclusions

It is concluded that, with due allowance for mechanical factors, multifiber pulp suspensions of the type here described display a chemical behavior similar to that of negative, hydrophilic colloidal suspensions. It has been shown that such pulp suspensions are considerably affected in their ability to form a sheet of given physical properties by dispersing and coagulating agents in a manner consistent with the abovementioned behavior of colloidal suspensions.

It was found that the dispersion of fibers in such suspensions (as measured by the filtration efficiency of the resultant paper) is improved by the use of wetting agents such as Triton 770, although severe reduction in tensile strength could be expected. Such loss in tensile strength was overcome by the use of carboxymethylcellulose as a bonding agent.

Acknowledgment

This investigation was carried out in the facilities of the Department of Chemical Engineering, University of Maine, under contract between the University and the Chemical Corps, United States Army. Publication has been authorized by the Chief Chemical Officer. Grateful acknowledgement is made of the helpfulness and cooperation of the various officials of the Chemical Corps Technical Command, particularly James P. Mitchell, Project Officer.

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MAINTENANCE—XI OF SERIES

Conservation of Paper Machine Felts

Part I — Design and Construction

L. M. Woodside[1]

Papermakers' felts are a vital operating supply in the paper industry and, because of the worldwide heavy demands for wool, the problem of felt conservation is becoming increasingly important. Whatever steps can be taken by the felt manufacturer or by the paper mill to prolong felt life or improve performance should be utilized. As a felt maker, we are pleased to submit recommendations towards accomplishing these ends.

[1] Albany Felt Co., Albany, N. Y.

Basically, a felt may be termed a "compromise" of three factors: openness, finish and strength. These factors should be carefully balanced to best meet the particular conditions under which the felt must operate. One or two of these factors may be improved, but usually at the sacrifice of another, and to improve all three simultaneously is practically impossible. On the other hand, the addition of such equipment as suction units, calenders, smoothing presses, or other finishing equipment, and additional synchronized drives definitely effect felt life. In some cases, additional suction units minimize the factor of felt openness; calenders, smoothing presses, and other finishing equipment often make it possible to produce a finer sheet with a coarser, more rugged felt; and synchronized drives make possible the use of a finer felt, as the felt no longer carries the heavy load.

To operate at maximum efficiency, the felt must be made to the correct specifications of length and width. In arriving at width specifications, it is

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important to provide the felt maker with the width of press rolls and, in the case of a cylinder machine, the width of cylinders. For felt length, the maximum and minimum distance of its travel, measured with the stretch roll at the long and short end of the jack, is essential. While there is no set formula for the proper amount of take-up on stretch rolls, to allow for any variation in felt length it is well to provide a minimum of 10 percent of the felt's length with nothing shorter than a 3-foot jack or six feet of takeup wherever possible. With this basic information, the felt design is carefully worked out, taking into consideration such factors as machine speed, necessary degree of water removal, stock, finish, and every mechanical condition that has a bearing on felt performance, such as press roll equipment, bearings, amount of strain on the felt, and the use of conditioners.

Having successfully developed a felt best suited to the requirements of the machine, the felt maker will pattern the manufacture of future felts for the same position along the same lines as nearly as possible. Comments by the operator to the felt company's representatives will assist in keeping the felt right for the job.

It is necessary, also, for consistent good felt performance that the machine condition be maintained as good as or better than at the time of the initial satisfactory felt. This brings us directly to a consideration of maintenance. While, of course, maintenance throughout the mill is essential and felt performance is affected by the operation of equipment all along the system, we shall consider mainly the wet end of the machine.

The felt, in addition to transporting the sheet, must in many applications act also as a driving belt and its load must not increase beyond its designed capacity. Otherwise, it may stretch excessively and be weakened. If the machine conditions deteriorate, the specifically designed felt should not be expected to continue to operate satisfactorily. In railroading, it takes a certain size engine to pull a train of fifty cars. It cannot be expected that the same engine can pull 75 or 100 cars. It is better to use a larger engine to more easily pull the load.

Frequent inspection of bearings, both anti-friction and sleeve type, will insure their proper functioning and, in combination with good lubrication, prove beneficial to felt operation. Attention must also be given to the equipment used for driving the machine as it is subject to wear which, in turn, may cause wear on felts. Particularly, existing drive equipment should not be overloaded, and when new units such as larger diameter press rolls or additional dryer sections are installed they must be compensated for by changing the drives accordingly. Otherwise, costly time and felts may be lost due to heavy starting loads or by frictional wear created by variations in speed of the driven units.

On cylinder machines, chime straps should be checked occasionally as there is the possibility of stock working beneath them to cause additional braking action on the cylinder which will result in severe frictional wear on the felt. In such cases, unless the felt is made with a sufficient margin of safety in strength, it is likely to stretch or scuff the sheet.

Suction box covers should be checked closely as they, too, are sources for frictional wear. They must be kept smooth and flat for satisfactory operation and should be so placed that they are not above the line of felt travel. Wear may be further minimized by the use of sufficient water of lubrication. A felt that is too dry will be more severely affected when going over a suction box than one that is water lubricated. Excessive vacuum will result in increased drag, so the minimum required for maximum water removal will prove most advantageous. By experiment, it has been proven in many cases, that the gain in water removal resulting from high vacuum is slight, while its effect on felt performance may be quite pronounced.

This calls to mind the problem of length of draw. In some instances, suction boxes are installed ahead of the press on a Fourdrinier machine, with the distance between the nip of the press and the felt roll not over a foot. The felt is so taut that it cannot be freely pulled down into the slots of the suction box and severe wear results. Therefore, we suggest that where plans call for the installation of a suction box, or even a felt conditioner, it be installed on a draw of at least four feet between felt rolls.

Many mills now take frequent measurements of the running length of their felts at several points in the felt's travel as a guide in directing their maintenance efforts. This is good practice and will save time as well as felts by indicating changes in the machine load before the source of trouble progresses to a danger point.

Let us consider the tension at which a felt should be run. Many believe a felt should be run tightly, but from a standpoint of good performance and production, the best method is to run it as slack as successful operation will permit. The felt weave remains more open, its yarns are less vulnerable to punctures, and it is better able to "breathe" to keep itself clean. The reasons behind this are closely related with the idea of overall stretch in a felt, in turn related to its manufactured length.

As an example, assume a bottom felt is made 150 feet long. So long as the maximum running length does not exceed 150 feet, as much as 8 feet of stretch, from minimum to maximum, uniformly distributed over the machine should not be harmful. If the same felt, however, has a maximum length of 152 feet or more, then the two feet of stretch is too much. In the latter case, the felt has gone beyond its manufactured length and is approaching the elastic limit beyond which trouble may occur. It must necessarily be tight which means any foreign matter going through the machine is likely to cause punctures; also, it may not have sufficient strength to pull the various machine units.

As long as the maximum length of the felt, then, does not exceed the manufactured length, providing the stretch is not concentrated in one small distance, the felt has "comeback ability" or elasticity which allows it to take the load off the running machine and still come back to a good length after the load is released. This breathing of the felt is important for best performance.

Other factors which effect the conservation of felts include such matters as the weighing of presses, use of whippers, felt rolls, conditioning units and proper felt cleaning. These will be reviewed in a subsequent article.

CLARK SOFTNESS-STIFFNESS TESTER

For determining the softness, stiffness, rigidity and rigidity factor of materials (to 50 mils thickness) from tissue to thin paper boards, and from gauze to rubberized textiles and canvas duck.

Has been adopted as a standard by:

TAPPI Standard T-451-m45
U. S. Army Spec. 20-1048
U. S. Spec. MIL-T-10168A
Packaging Institute Test Procedure PI-Paper 10449

THWING-ALBERT INSTRUMENT COMPANY
5366 Pulaski Avenue
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Advertisement No. 188

CANADIAN CARLOADINGS

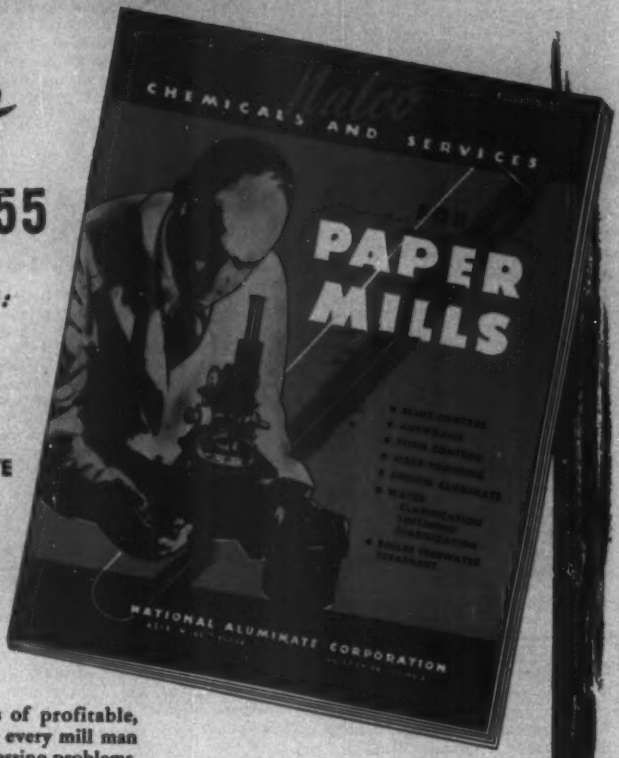
OTTAWA.—Car loadings on the railways from the beginning of 1951 until September 1 advanced to 168,394 cars of woodpulp and paper as compared with 150,735 cars a year ago in the similar period, according to the results of the latest nationwide survey by the Canadian Government.

Your Copy is Ready!

Nalco BULLETIN 55

Condensed Data on:

- SLIME CONTROL
- ANTIFOAMS
- PITCH CONTROL
- MOLD PROOFING
- SODIUM ALUMINATE
- WATER
  CLARIFICATION
  SOFTENING
  STABILIZATION
- BOILER FEEDWATER
  TREATMENT



HERE are twenty pages of profitable, educational reading for every mill man concerned with chemical processing problems. In addition to compact information on the principal Nalco chemicals and services listed above, there are numerous photos and microphotos of typical microbiological troublemakers in mill systems . . . a big section giving detailed answers to over 75 of the most commonly asked questions about pulp and paper mill slime control . . . and factual users' reports on Nalco chemicals and services in action.

Your copy of Nalco Bulletin 55 will be sent promptly upon request. Use the coupon below, or ask your Nalco Representative.

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THE *Nalco* SYSTEM • Serving the Paper Industry through Practical Applied Science

New Equipment

Dynoptic Labroscopes

Ball bearings and rollers throughout the focusing system are features of a new line of laboratory microscopes now in production. Called Dynoptic Labroscopes, the new instruments also feature a low position fine adjustment and a mechanical stage with low controls that enable the operator, after setting the coarse adjustment, to rest his hand on the table and manipulate the other controls in a comfortably relaxed position.

Substage equipment, in addition to that formerly available, includes a Variable Focus Condenser in a tubular mount which does not require a rack and pinion substage. A substage illuminator is available which can be used integrally with the Labroscope in place of the mirror or separately. Optical equipment for the new instruments includes a new, longer working distance and non-divisible 10X achromatic objective. Catalog available from Bausch & Lomb Optical Co., 635 St. Paul St., Rochester 2, N. Y.

Steel Bridge Flooring

Whether laid longitudinally or transversely on a bridge, IQ-35 Rectangular Steel Bridge Flooring will carry H20 loading on a 15" circle up to a span of 48" and weighs approximately 19 lbs., the manufacturer claims. It is made with grating parallel with traffic and transverse to traffic. In the latter type, the transverse bars on which the tires ride are placed higher than the longitudinal bars; and the transverse bars are serrated to permit tires to maintain or develop greater traction for emergency stopping. Grating is finished with a specially developed red lead paint.

A related open steel flooring for industrial and chemical plants is known as Series CB Standard Rectangular Pattern. This flooring is forged under 500 tons hydraulic pressure with a positive dovetail lock construction. It is swaged cold to prevent internal strains which might cause warping; slotting terminates above the neutral axis of bearing bars, to provide maximum strength; cross bars extend below the bottom of the slots to eliminate the possibility of lateral deflection. New folders available on request to Kerlow Steel Flooring Co., 222 Culver Ave., Jersey City 5, N. J.

Electric Dehumidifier

The Frigidaire Electric Dehumidifier is designed to reduce and control humidity in any confined area up to 8000 cubic feet—equal to a 20' x 50' room with 8 ft. ceiling. It is a compact rectangualr box which plugs into any convenient outlet and operates on a simple refrigeration principle.

Moisture-laden air from the room is drawn through a special filter into the unit, then over a series of fins cooled to below normal room temperature by a Meter-Miser refrigerating mechanism. When the air is cooled, the excess moisture condenses on the fin surfaces and is disposed of by means of a permanent drain or by using the removable container. The filtered, dehumidified air is discharged into the room through the rear grille. Write for Bulletin 322 to Burrell Corp., 2223 Fifth Ave., Pittsburgh 19, Pa.

NEW CHEMICALS

Combined Detergent and Promoter

Development of the first and only combined industrial detergent and promoter in commercial production has been announced. In properly compounded cleaners, this field-tested product can be substituted for any other alkylarylsulfonate detergent with a 20 percent to 70 percent improvement of soil removal and whiteness retention properties in the cleaning and processing of cottons.

Know as Kreelon CD, this new product is an integral mixture combining the advantages of Kreelon, an alkylarylsulfonate type detergent, and Carbose, sodium carboxymethylcellulose. The product will find special application in the laundry and textile fields for such operations as commercial cleaning, scouring, kier boiling, aftersoaping, etc., imparting superior soil removal properties, providing greater prevention of soil redisposition, and offering brighter color. It reduces skin irritation . . . and produces long-lasting suds, the manufacturer claims.

Free samples and further facts are available upon request from the organic chemicals sales department, Wyandotte Chemicals Corp., Wyandotte, Mich.

Polyamide Resin Suspensoids

The Polyamide Resin Suspensoids are opaque white, water suspensions of heat-sealing Polyamide Resins. Individual formulations seal firmly to a wide variety of surfaces, including paper, cloth, cellophanes, metal foils, glass, leather, cork, wood and some plastics and plastic films. Like the Polyamide Resins from which they are made, they are resistant to greases, oils, water and water-vapor. Recently, the Suspensoids have also worked their way into so-called "wet stick" adhesives. And they show promise as soil-resistant coatings for textiles, as protective and decorative coatings, as beater additives and tub sizes for paper and as binders for sawdust, cork, leather, textile fibers, pigments and other materials, the manufacturer states as he announces expanded production.

General Mills now makes Polyamide Resin Suspensoids of four types, each tailored for a series of applications. It expects to make still other types available as it continues its development program. Produced by General Mills Research Laboratories, 2010 East Hennepin Ave., Minneapolis 13, Minn.

Solvent Emulsion Cleaner

Type FO-106 is one of three degreasers designed to meet particular types of cleaning problems. After dilution with kerosene, varsol or similar solvent in 4 to 9 parts, it is applied to clean greasy or dirty surfaces and parts by pressure spray or by brush; or it may be used in cleaning tanks at room temperature for cleaning by soak method. For light service cleaning or painted surfaces, it may be diluted with water up to 20 parts, the producer states. Contains no cresyllic acid or free caustics, and is said to be relatively odorless and easy on the hands. Source: Fine Organics, Inc., Aviation-Industrial Chemicals Div., 211 E. 19th St., New York 3, N. Y.

NEW SUPPLIES

Steel Strap Substitute

Fiberstrap is a tough new strapping which replaces the restricted steel type. Used in general binding operations, which include freight and express parcels and re-coopering work on truck and rail shipments, the product is said to have tested to a pull of 275 pounds, to retain its original tensile strength and ductility under normal conditions, and to provide uniform tension. Mechanical tensioning and sealing is by means of a standard Steelbinder strapping tool. Produced in standard ¼" width, .040" thick, the strap has a soft, smooth surface that is described as non-abrasive and non-adhesive. Write to A. J. Gerrard & Co., 1950 North Hawthorne Ave., Melrose Park, Ill.

Industrial Flooring

The addition of pulverized natural rubber to an industrial floor material consisting of asphalt-rock limestone and cold asphalt emulsion produces a new industrial flooring particularly designed for areas subjected to crushing action of steel-wheel vehicular traffic. Known as Immediate-Set, the material is suitable for large area floor resurfacing with a relatively thin (½ inch) layer, and for patching small damaged areas either in interior or exterior locations.

Product is factory mixed and requires no additives or processing before use.

Manufactured by Flash-Stone Co., Inc., 30 E. Rittenhouse St., Philadelphia 44, Pa.

St. Helens Pulp and Paper Company selects a C-E Recovery Unit

The $5,000,000 expansion and modernization program of the St. Helens Pulp & Paper Company at St. Helens, Oregon is now shaping up rapidly.

A feature of the new extension will be a C-E Recovery Unit which is now in process of engineering and fabrication. This unit will burn 875,000 pounds of dry, black liquor solids per 24 hours. Its design pressure is 675 psi but the initial operating pressure will be 250 psi. Later the operating pressure will be raised to 600 psi. Total steam temperature is 750 F.

Based on a sound, basic design, enhanced over the years by carefully developed improvements, the C-E Recovery Unit now enjoys a widespread, service-proved reputation for efficiency, reliability and operating economy. Naturally, more and more pulp and paper companies are selecting Combustion equipment both for new installations and for expansion and modernization of existing facilities. B-521

Combustion Engineering—Superheater, Inc.

200 Madison Avenue • New York 16, N. Y.

PRODUCTS FOR THE PAPER INDUSTRY INCLUDE RECOVERY UNITS, STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; ALSO PRESSURE VESSELS

7½-inch Incandescent Lamp

The new incandescent lamp resembles the picture tube of a small television set. Designed for hard-to- reach, high-bay factory areas where dirt, smoke or fume particles drop a curtain around the pear-shaped bulbs and cut light output, the new lamp has a built-in silvery reflector on the inside of the bulb similar to a sealed beam automotive headlight, so the curtain of dirt does not reduce its efficiency. Only its lower surface is vulnerable to the dirt particles.

Designated R-57 bulb Industrial Reflector, the 800-watt, 7½-inch maximum diameter lamp will burn an average of 1,500 hours, or about four months on a two-shift operation, it is stated. (The regular 750-watt light bulb which this new lamp should replace in many industries burns an average of 1,000 hours.) A standard mogul screw base allows operation in existing sockets. Volume production is scheduled for late this year. Developed by Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa.

NEW LITERATURE

Allis-Chalmers Mfg. Co., Box 512, Milwaukee, Wis. Bulletin No. 05B-7542A, "Allis-Chalmers Large Squirrel-Cage Induction Motors End Shield Construction." Gives construction details and features. Illustrated.

Carpenter Steel Co., Union, N. J. Wall chart. Gives valuable corrosion data. Also data on standard tubing sizes as well as dimensions, pressures and tolerances for stainless pipe in schedules 5, 10, and 40.

Department of Commerce, Nat'l Production Authority, Washington 25, D. C. Pamphlet, "Scrap for Steel Mills and Foundries for Defense." Outlines the nature of the scrap shortage problem and the steps being taken to solve it.

Detroit Stoker Co., Detroit 2, Mich. Booklet, "Burn Refuse or Coal Separately or in Combination with Detroit Stokers." Features installation of Rotograte Stokers for wood bark refuse, at Charleston, S. C., mill.

J. P. Devine Mfg. Co., 49th and Harrison Sts., Pittsburgh 1, Pa. Booklet, "Devine Process Equipment." Technical data about Devine Side-Entering, Portable, and Flange-Mounted Mixers; Devine Double-Ribbon Mixers; Devine Double-Cone Blenders, etc. Illustrated.

Fee and Stemwedel, Inc., 2210 Wabansia Ave., Chicago 47, Ill. "Airguide Humidity Indicator." Explains why this new addition should win wide acceptance with many types of manufacturers, storage houses, testing laboratories, and other commercial concerns where the maintenance of constant humidity conditions is essential to operating efficiency and healthful and comfortable working conditions.

A. J. Gerrard & Co., 1950 North Hawthorne Ave., Melrose Park, Ill. Bulletin, "Expand - R - Strap for Expanding-Contracting Surfaces." Technical plus sales copy.

Hagan Corp., Hagan Building, Pittsburgh 30, Pa. Bulletin, "Hagan Flow Signal Transmitter High Pressure Type." Diagrams illustrating seven uses of the Transmitter in measurement of flow, liquid fuel, liquid level, and absolute pressure. Cutaway drawing in color illustrating the principles of operation of the Flow Signal Transmitter.

Lignum-Vitae Products Corp., 96-100 Boyd Ave., Jersey City, N. J. "An Important Wartime Report for Production and Engineering Executives." The story of Lignum-Vitae, how it is used for mechanical and industrial purposes and how it is used as a substitute for critical metals and plastics.

Metallising Engineering Co., Inc., 38-14 30th St., Long Island City, 1, N. Y. Bulletin, "The Metco Type 4E Gun." Tells how this Type 4E gun may be used for high-speed spraying with all metals. Also, "The Metco Type 5E Gun for Corrosion Protection." How it can be used for high-speed hand spraying of soft metals.

U.S. Pulp Producers Assn., Inc., 122 East 42nd St., New York 17, N. Y. Book, "Wood Pulp Statistics, 1951 Edition," 221 pp., price $10. The 16th edition of this publication is an up-to-date revision of available basic wood pulp data for the major producing and consuming countries of the world. Supplies full information on capacity, consumption, prices, etc., for wood pulps by grade; covers pulpwood prices, consumption, receipts, and inventories; and lists U. S. paper and paperboard production, exports and imports by tonnages for the last 50 years.

TEST 4 TYPES OF WASTE LIQUOR

Four paper companies, a statewide research organization and Outagamie county road authorities are jointly making a test of four different types of sulphite pulp mill by-product as roadbinder.

On County Trunk S, just east of town, they have applied these treatments to four adjoining stretches of road, all of practically identical construction and surface. Now the engineers are waiting for normal traffic on the road to supply the answers.

Rhinelander Paper Co. sent effluent from its torula yeast plant at Rhinelander which treats spent sulphite liquor to reduce the pollutional strength.

Marathon Corp. provided effluent from its chemical division plant at Rothschild where liquor is treated by the Howard process to remove certain ingredients.

Consolidated Water Power & Paper Co. supplied liquor from the ammonium base process of sulphite pulping which is now having a trial run at its Wisconsin Rapids mill.

Kimberly-Clark Corp. provided sulphite liquor from the conventional calcium base process of sulphite pulping at its Kimberly mill, and likewise spread all four types of material on the road with its fleet of roadbinder trucks.

ECUSTA'S NEW DIVISIONS

Pisgah Forest, N. C.—The formation of a new operating organization for the Ecusta Paper Corp., a subsidiary of Olin Industries, Inc., was announced along with the appointment of executive personnel to administer the company's two new operating divisions.

The announcement was made jointly by John M. Olin, president of Olin Industries, Inc., and John Wesley Hanes, Olin vice-president and president of Ecusta, who will administer the new divisions.

Norman H. Collisson, Ecusta vice-president, was appointed general manager of the Olin Cellophane Division.

Lawrence F. Dixon, executive of Ecusta and its affiliates for many years, was appointed general manager of the Ecusta Paper Division.

Olin Cellophane Division executives named by Mr. Collisson were: Milton L. Herzog, production manager; James L. Spencer, sales manager; E. Hartshorne, research and development manager; and E. L. Lynn, quality control manager.

Executives of the Ecusta Paper Division appointed by Mr. Dixon were: Lee M. Bauer, production manager; R. E. Matthews, sales manager; Milton O. Schur, research and development manager; and R. L. Hooper, quality control manager.

J. K. Pepper was assigned to assist Mr. Hanes and R. W. Lea, Olin Industries' director, in organization matters.

POWELL RIVER FOREST CLOSURE

Powell River, B.C.—Powell River area, which has about 20% of its workers directly employed in woods operations, was beginning to feel the pinch of 57 days without rain and the closure of all forest operations in the district.

The town will share with other British Columbia centers, which depend upon forest products, any economic disaster which may follow this winter as a result of lack of log and lumber stocks and the shifting of woods employes to the steadier jobs now available in construction work.

Powell River district is leading the province in its low fire rate; there have been only nine woods fire this season, none of them over 2½ acres. Parksville is second, with nearly double that number of fires.

But loss in woods wages was at the half-million mark, and was mounting steadily.

Powell River Co. decline to predict the effect on its operations after present supplies of logs are exhausted if the forest closure is still effective.

Have You Given Your Blood Yet?

Do you know we need a reserve of 3 million pints of blood? That the collection has dropped to only 30,000 pints per month? The goal is 300,000 pints for each of the next 10 months. That the armed forces expect to give half of this amount for themselves.

Certainly, we, civilians can do equally as well.

IT'S EASY TO GIVE AS MOST OF YOU WELL KNOW, from the last war's experience.

Just call your Red Cross Chapter, they will make all the arrangements.

Don't let a man die for the want of a pint of *Your Blood.*

We would like to publish the Pulp & Paper Co. names who are active in the Blood Donor Program for the Armed Services.

AUSTRALIAN NOTES

Australia is at the moment feeling the newsprint shortage very severely, and the position has been worsened by the action of the British Board of Trade in suspending Bowater shipments (3,600 tons scheduled for April alone). Leading daily newspapers have cut sizes drastically and have increased advertising rates to as much as 75 percent above the May figures.

Every possible effort is being made to improve the position, and merchants have sent executives to the United States and Canada to do their utmost to obtain supplies. But it is reported that, so far as Canada is concerned, no supplies will be available until 1952.

The Australian Newsprint Mills at Boyer, Tasmania, have suffered severely during this year from a reduced supply of hydro-electric power, due to a drought, and it is now feared that if the winter rains are not above average, severe power rationing may again be necessary next year.

But the managing director of Australian Paper Manufacturers Ltd., C. S. Booth, makes the statement that, with basically the same plant and manpower as 1949, his organization raised its production more than 11 percent in 1950. "Major credit for the big increase," he says, "must go to employee co-operation. The industry protects margins of skill against cost of living rises. The company's voluntary recognition of the justice of this principle has a marked effect on morale. Together with other benefits enjoyed by employees, it contributes to a high sense of responsibility towards production."

* * *

Application 141,646 has been lodged by C. P. Detmold for an Australian patent for a method of manufacturing crepe paper. Details are: "An apparatus for manufacturing crepe paper or the like characterized by means to pass the unprocessed paper between rollers, the one roller having a resilient gripping surface and the other roller having a hard gripping surface, and means to rotate the said rollers at different peripheral speeds."

* * *

Associated Pulp and Paper Mills Ltd. has increased its nominal capital to £10 million by the creation of five million shares of £1 each, and it will now make an issue of 1,716,845 shares at par in the ratio of one for every two held. Money will be used partly to established the new paper mills at Geelong, and partly to acquire the English holding in Thomas Owen & Co. (Australia) Ltd., Burnie, Tasmania.

ONE BASIC PUMP SERVES TWO DIFFERENT NEEDS

This heavy duty, single-stage, single-suction pump handles pulp stock and acid or liquor . . . easily converts to meet production changes or replacement needs.

QUICK CONVERSION FROM ONE JOB TO ANOTHER!

Converts from pulp stock handling to acid-liquor service by merely changing a few pump parts. For hot service, a water-jacketed stuffing box is easily added.

SMALL NUMBER OF SPARE PARTS SERVES MANY PUMPS

By standardizing on these pumps, you also economize on spare parts—a small number of interchangeable parts protects a large number of pumps.

EASILY REPAIRED WITHOUT DISTURBING PIPING

Dismantling is simple. Entire bracket, rotating element and pump cover can be unbolted and lifted free from the case without disturbing suction and discharge piping.

STANDARDIZE ON THE BJ PULP PUMP

for pulp stock and acid or liquor handling

Byron Jackson Co.

Since 1872

P.O. Box 2017 Terminal Annex, Los Angeles 54, Calif.

OFFICES IN PRINCIPAL CITIES

For full details, write for Bulletin No. 48-9000

ASSOCIATIONS

DISCUSS NEW PULP SOURCES

New sources of pulp were discussed September 17 and 18 in Appleton, Wis., by pulp experts from various parts of the world attending the meetings of the Food and Agriculture Organization's wood chemistry committee.

Today's serious pulp shortage can be alleviated only if new sources for technical cellulose are made available, according to Dr. Herman Mark of the Polytechnic Institute of Brooklyn, who was chairman of this fourth meeting of the committee.

Tropical forests and certain agricultural waste products are potential new sources, Dr. Mark says, if methods for their utilization can be worked out. About 20 papers on decisive technical progress in this field were presented at the meeting, demonstrating that even the highest grades of cellulose can be commercially obtained from these as yet virtually untapped raw materials.

The actual application of this technical progress is slowed down by the scarcity of highly trained specialists in most countries having large tropical forest areas. The committee will discuss a proposal to organize a technical advisory and assistance service to underdeveloped areas which are ready and capable of participating in FAO's forestry program.

A worldwide system of standardizing the various products of wood chemistry is also needed, and the establishment of such a system will be discussed at the meeting. Australian, Austrian, British, French and Swedish experts will report on the need for precise technical standards of quality and stability of the various initial and intermediate products.

Tropical woods as a source of pulp was the topic of papers presented on September 17, with the following day's sessions devoted to papers on the chemical utilization of agricultural residues. At the close of the Tuesday afternoon session participants toured the laboratories of the Institute of Paper Chemistry located in Appleton.

Following the FAO meeting there was a three-day International Pulp and Paper Symposium sponsored by the Institute of Paper Chemistry. On September 19 and 20 invited experts read technical papers and participated in panel discussions, and on September 21 there will be three informal round table discussions—on lignin, on cellulose and the hemicelluloses, and on pulp and paper.

Experts were invited from the following countries to attend the meetings: Argentina, Australia, Austria, Belgium, Brazil, British West Indies, Canada, Egypt, England, Finland, France, Germany, Hungary, India, Israel, Italy, Japan, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, United States, and Yugoslavia.

AWARD GREASEPROOF ASSN.

CHICAGO, Ill.—The Glassine and Greaseproof Manufacturers Assn. received an Award of Merit of the American Trade Assn. Executives at the opening luncheon of the ATAE annual meeting at the Edgewater Beach Hotel September 17.

The citation for the award to the Glassine and Greaseproof Manufacturers Assn. read as follows:

"—for its excellent services to its industry and the public and especially for its work in gathering statistical data relative to industry operating techniques which resulted in business aid reports to member companies and the founding of an accounting and cost procedure system for the guidance of members. Under the leadership of the Association, technical research was furthered through pooling the entire data of the industry, resulting in new methods and processes."

NATIONAL SAFETY CONGRESS

The 1951 National Safety Congress will be held in Chicago from October 8 to 12. The program for the Pulp and Paper Section is practically completed. All of the meetings will be held in the Stevens Hotel. General sessions are scheduled for the mornings, while sectional meetings will be held in the afternoon.

Monday afternoon: the report of the general chairman, a speaker, election of officers, and the presentation of the Edward Benton Fritz trophy. Monday evening: a smoker so everyone can get acquainted at once.

Tuesday afternoon: three or four speakers on safety subjects pertaining to paper and pulp mills.

Round table discussions are scheduled for Wednesday and Thursday afternoons.

FINANCIAL

Howard Smith Paper Mills Co., Ltd.'s present stockholders will be offered an issue of new common shares at a price of $23 per share, based on offer of one additional new common for each five new common held and covering 268,656 shares.

Great Lakes Paper Co. Ltd. reports net profits of $1,818,810 in the first six months of 1951, compared with net of $1,151,722 in the same period last year. Operating profits jumped to $5,224,924 from $2,902,700 and profit before income tax provision was up at $4,447,810 from $2,106,722. Tax provision jumped to $2,579,000 from $955,000 and the company set aside $50,000 for contingencies this year.

Abitibi Power & Paper Co., Ltd., is the winner of the Financial Post's Annual Report Awards in Canada for 1951 in the Manufacturing and Process Class. Purpose of these awards is to bring recognition to companies that have done an outstanding job in reporting clearly and completely to shareholders, employes and the public at large.

Judges who pick the winners in six industrial categories are representatives of the Canadian Institute of Chartered Accountants, the Investment Dealers' Assn. and the Assn. of Canadian Advertisers. The annual reports of all public companies were taken under study by the judges.

Howard Smith Paper Mills, Ltd., show a net profit for the six months ended June 30, 1951, of $2,839,245 compared with $2,049,984 in the first half of 1950 and $1,262,571 in 1949's similar period.

Estimated net current assets at June 30, 1951, totaled $16,291,116 as against $15,876,375 last year and $12,849,489 the year before that, with these unaudited figures not reflecting year-end adjustments and additional depreciation of $1 million provided in respect to the 12 months ended December 31, 1950.

St. Lawrence Corp. reports that another 49,691 first preferred shares have been surrendered for exchange into 99,382 common shares. There are now 4,340 first preferred and 1,102,715 common shares outstanding.

American Brake Shoe Co. declared a quarterly dividend of 75 cents a share on the common stock, payable September 28th to stockholders of record September 21st. The regular quarterly dividend of one dollar per share was also declared on the preferred stock.

ATLANTA ENV. BUYS SOUTHERN

ATLANTA, Ga. — Southern Envelope Manufacturers, Inc., Nashville, Tenn., has been acquired by the Atlanta Envelope Co.

The Nashville concern, now in its 20th year of operation, will be under the Atlanta Envelope Co. management, with Sigmund Held, formerly of Atlanta, as general manager. Mr. Held is the grandson of the late Sigmund Guthman, founder of the Atlanta Envelope Co.

Officials said acquisition of Southern Envelope Manufacturers is another step in the Atlanta firm's expansion program. Currently, Atlanta Envelope is building a combined office, warehouse and manufacturing plant, comprising 65,000 square feet of floor space on a single floor, on Northside Drive.

Although Atlanta Envelope Co. will operate the Nashville concern as a branch plant, it will be a separate corporation. The two organizations, however, will share equipment and facilities, it was stated.

CANADIAN WOODPULP TO ITALY

OTTAWA. — Canadian exports of woodpulp to Italy during June this year amounted to $1,303,454, it is reported.

Downingtown Heavy Duty Duplex Board Slitter.

cutting and slitting

ACCURATE and FAST ...to match today's HIGH SPEED board machines

Downingtown High Speed Cutter and Slitter.

P.I.V. and chain drive eliminate belts and pulleys.

To handle the production of modern board machines with a minimum of lost time and sheet spoilage, Downingtown has developed the highly accurate... high speed Duplex Cutter and Slitter. It easily handles a wide range of sheet lengths at a tolerance of ±1/64".

The Downingtown Slitter is compact, easy to operate and to maintain, practically noiseless, and produces a clean accurate sheet free from "fanning". Anti friction bearings are furnished throughout.

Write for detailed specifications of a typical Downingtown Duplex Cutter and Slitter.

DOWNINGTOWN MANUFACTURING CO., DOWNINGTOWN, PA.
Pacific Coast Representative: John Y. Rowland, Pacific Bldg., Portland 4, Oregon

DOWNINGTOWN

CUTTERS · SLITTERS

DESIGNERS AND BUILDERS OF PAPER, BOARD AND FELT MACHINES SINCE 1880

Bids and Awards

GPO 4th Quarter, 1951 Paper Needs

WASHINGTON — Bids were received on September 10 by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for a three-month period beginning October 1, 1951. Awards, announced September 17, are indicated by asterisks (*) before the names of the successful bidders in the tabulation herewith.

Newsprint

No. 1—3,200,000 lbs., 24x36—64; rolls, 19, 24, 34, 38 and 48 ins. wide, 36 inches in diameter (3-inch fiber cores); also rolls, 23, 34½ and/or 44 ins. wide, 38 inches in diameter, max. width 40 ins. (returnable 3-inch iron or metal-capped fiber cores). Min. order, 40,000 lbs.

Machine-Finish Book

No. 5—1,600,000 lbs., 25x38—70; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
* Mead Sales Co. ..... .1300c
Mead Sales Co. ..... .1300c
No. 6—40,000 lbs., 25x38—70; rolls, 28½ ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
* Mead Sales Co. ..... .1175c
Mudge Paper Co. ..... .1347c
No. 7—600,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
* Walker Wilcox Furlong ..... .1147c
Mead Sales Co. ..... .1178c
Mudge Paper Co. ..... .1347c
No. 9—420,000 lbs., 25x38—70; rolls, 24, 36 and 48 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
* Mead Sales Co. ..... .1175c
Mudge Paper Co. ..... .1347c

English-Finish Book

No. 10—130,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 48 ins., max. length 56 ins.; min. order, 20,000 lbs.
* Stanford Paper Sales Co. ..... .1352c

Machine-Finish Book End Paper

No. 16—40,000 lbs., 25x38—160; flat, cut 38x50 ins., min. order, 20,000 lbs.

Offset Book

No. 17-17a—400,000 lbs., 25x38—80; flat, cut any size, width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
No. 18-18a—3,288,000 lbs., 25x38—100; flat, cut any size, and 8x10½ ins.; min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
No. 19-19a—100 000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
No. 20-20a—100,000 lbs., 25x38—160; flat, cut 38x53 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.

Antique Book

No. 21—120,000 lbs., 25x38—90; flat, cut 32x42, and 38x50; min. order, 40,000 lbs.
* Stanford Paper Sales Co. ..... .1379c
No. 22—85,000 lbs., 23x38—120; flat, cut 32x42, 38x48, and 38x50 ins.; min. order, 20,000 lbs.
* Stanford Paper Sales Co. ..... .1379c
No. 24—20,000 lbs., 25x38—60; flat, cut 28x38 and 38x48 ins.; min. order, 10,000 lbs.

50% Antique Book

No. 26—60,000 lbs., 25x38—80; flat, cut 32x48, and 38x48 ins.; min. order, 20,000 lbs.
* Walker Goulard Plehn Co. ..... .2788c
No. 27—30,000 lbs., 25x38—80; shall be suitable for writing on with ink; flat, cut 22½x31 ins.; min. order, 30,000 lbs.
* Walker Wilcox Furlong ..... .2497c
Walker Goulard Plehn Co. ..... .2788c

Water Resistant (Test) Book

No. 30—200,000 lbs., 25x38—120; flat, cut 32x42 and 38x45 ins.; min. order, 40,000 lbs.
* Stanford Paper Sales Co. ..... .1960c

Supercalendered Book

No. 32—60,000 lbs., 25x38—90; flat, cut any size; min. width 24 ins., max. width 48 ins.; min. order, 40,000 lbs.
* Mead Sales Co. ..... .1310c
No. 33—700,000 lbs., 25x38—90; rolls, 28½ and 38 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
Mead Sales Co. ..... .1185c
* R. P. Andrews Paper Co. (700,000 lbs.) ..... .0848c
Mudge Paper Co. ..... .1311c

Coated Book

No. 34—1,400,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins., max. width 48 ins.; min. order, 40,000 lbs.
* Walker Goulard Plehn Co. (400,000 lbs.) ..... .119c
* Frank Parsons Paper Co. (100,000 lbs.) ..... .123c
* Mead Sales Co. (900,000 lbs.) ..... .1340c
No. 35—340,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins.; min. order, 40,000 lbs.
Mead Sales Co. ..... .1340c
R. P. Andrews Paper Co. ..... .1214c
* Frank Parsons Paper Co. ..... .123c
No. 36—40,000 lbs., 25x38—100; rolls, 28½ and 38 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
* Mead Sales Co. ..... .1185c
No. 38—200,000 lbs., 25x38—140; flat, cut 32x42, 38x48 and 39x50 ins. and 42x64 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
* Walker Goulard Plehn Co. (100,000 lbs.) ..... .1673c
Stanford Paper Co. ..... .1725c
* Bermingham & Prosser Co. (100,000 lbs.) ..... .1673c
Mead Sales Co. ..... .1505c

Goldenrod Coated Book

No. 37—5,000 lbs., 25x38—160; flat, cut 38x50 and 42x58 ins.; min. order, 2,000 lbs.
* Whitaker Paper Co. ..... .2173c
Mudge Paper Co. ..... .2277c

Litho Coated Book

No. 43—40,000 lbs., 25x38—140; flat, cut 32x42, 38x45, 38x48, 39x50, and 41x52 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
* Stanford Paper Sales Co. ..... .1805c

Chemical Wood Mimeograph White and Colored

No. 44—1,000 000 lbs., white, No. 40; flat, cut 28½x34½, 32½x42½, 38x48½, 8 x 10½ ins. Grain size 28½x34½ ins. to run the 28½ inch way; size 32½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way; min. order, 40,000 lbs.
* Barton, Duer & Koch Paper Co. (400,000 lbs.) ..... .135c
Walker Wilcox Furlong ..... .1220c
* Walker Wilcox Furlong (200,000 lbs.) ..... .1360c
No. 45—90,000 lbs., blue, buff, green, pink and yellow, No. 40; flat, cut 32½x42½, and 38x48½ ins. Grain: size 32½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way. Min. order, one color, 10,000 lbs.

25% Mimeograph

No. 46—490,000 lbs., No. 40; flat, cut 28½x34½, 32½x42½, 38x48½, 8x10½, and 40½x42½ ins. Grain: size 28½x34½ ins. to run the 28½ inch way; sizes 32½x42½ and 40½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way; min. order, 40,000 lbs.
Whitaker Paper Co. ..... .222c
Whitaker Paper Co. ..... .236c
Cauthorne Paper Co. ..... .222c
* Walker Goulard Plehn Co. (250,000 lbs.) ..... .1949c

Duplicator Copy Paper Liquid Process, White and Colored

No. 47a—450,000 lbs., white; No. 40; flat, cut 8x10½, 32x42, 34x44 and 40x52½ ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
No. 48a—20,000 lbs., pink, yellow, green and blue, No. 40; flat, cut 32x42, 34x44 and 40x52½ ins.; the grain to run lengthwise of the sheet; min. order, 20,000 lbs.

Chemical Wood Writing White and Colored

No. 51-51a—120,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
No. 52-52a—3,672,000 lbs., white, No. 32; flat, cut any size, and 8x10½ ins.; min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
* R. P. Andrews Paper Co. (2,000,000 lbs.) ..... .1323c
No. 53-53a—4,700,000 lbs., white, No. 40; flat, cut any size, and 8x10½ ins.; min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
Frank Parsons Paper Co. ..... .135c
Whitaker Paper Co. ..... .1333c
* Barton, Duer & Koch Paper Co. (500,000 lbs.) ..... .1390c
* Barton, Duer & Koch Paper Co. . .1380c
* Whitaker Paper Co. (800,000 lbs.) 13.35
* Whitaker Paper Co. 13.35
* Frank Parsons Paper Co. (2,000,000 lbs.) 13.60
No. 54-54a—560,000 lbs., white, No. 32; rolls, min. width 16 ins., max. width 48 ins., 36 ins. in diameter (3-inch fiber cores); also rolls 23, 34½, 44 and/or 46 ins.; max. width 40 ins., 38 ins. in diameter (returnable 3-inch iron or metal-capped fiber cores); min. order, 40,000 lbs.
* R. P. Andrews Paper Co. ($60.000 lbs.) ..... .1176c
* R. P. Andrews Paper Co. ..... .1176c
Mead Sales Co. ..... .1300c
No. 55-55a—240,000 lbs., white, No. 40; rolls, min. width 16 ins., max. width 48 ins., 36 ins. in diameter (3-inch fiber cores); also rolls 23, 34½, 44 and/or 46 ins., max. width 40 ins., 38 ins. in diameter (returnable 3-inch iron or metal-capped fiber cores); min. order, 40,000 lbs.
* Mead Sales Co. ..... .1240c
No. 56-56a—28 000 lbs., blue, buff, green, pink, salmon and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
No. 57-57a—300,000 lbs., blue, buff, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
No. 58-58a—500,000 lbs., blue, buff, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
No. 61—130.000 lbs., No. 24; rolls, 22 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
* Mead Sales Co. ..... .1400c
No. 62—60,000 lbs., white, No. 30; rolls, 22 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores); min. order, 20,000 lbs.
* Mead Sales Co. ..... .1325c
No. 63—30,000 lbs., blue, green, pink, yellow, buff, cherry and salmon, No. 24; rolls, 22 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores); min. order, one color, 10,000 lbs.
* Mead Sales Co. ..... .1500c

White Chemical Wood Writing

No. 64—60,000 lbs., No. 32; rolls, 38 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
* Mead Sales Co. ..... .1300c

50% Lithograph-Finish Map

No. 70—50 000 lbs., No. 32; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
* Paper Corp. of U. S. ..... .3570c
Walker Goulard Plehn Co. ..... .3165c
No. 71—80,000 lbs., No. 40; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
* Barton, Duer & Koch Paper Co. (40,000 lbs.) ..... .30c
* Paper Corp. of U. S. (40,000 lbs.) ..... .3520c

High Wet Strength Map

No. 72—20 000 lbs., No. 48; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet (omit resin markers); min. order, 10,000 lbs.

Chemical Wood Manifold White and Colored

No. 83—280.000 lbs., white, No. 18; flat, cut 8x10½, 21x32, 28x34, 32x42, and 34x44 ins.; min. order, 10.000 lbs.
* Fresh Parsons Paper Co. (80 000 lbs.) ..... .2074c
No. 85—100,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, one color, 5,000 lbs.

50% Manifold, White and Colored

No. 86—30,000 lbs., white, No. 14; flat, cut 32x42 ins.; min. order, 10,000 lbs.
Ecusta Paper Co. ..... .52c
* Stanford Paper Sales Co. (30 000 lbs.) ..... .4355c
No. 87—100 000 lbs., white, No. 18; flat, cut 8x10½, 21x32, 28x34, 32x42, and 34x44 ins.; min. order, 10,000 lbs.
Ecusta Paper Co. ..... .48c
* Stanford Paper Sales Co. (40,000 lbs.) ..... .4578c
* Stanford Paper Sales Co. (37,000 lbs.) ..... .481c

No. 89—15,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, one color, 5,000 lbs.

50% White Glazed Manifold

No. 91—45,000 lbs., No. 16; flat, cut 32x42 ins.; min. order, 20,000 lbs.
- Ecusta Paper Co. ..... .50c
- * Barton, Duer & Koch Paper Co.. . .5025c

Chemical Wood Bond, White

No. 102—350,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
- * R. P. Andrews Paper Co. ..... .1510c

Chemical Wood White Mimeograph Bond

No. 104—100,000 lbs., No. 40; flat, cut 32½x42½ ins.; the grain to run lengthwise of the sheet; min. order, 20,000 lbs.
- * R. P. Andrews Paper Co. ..... .1510c (Rejected)

No. 103—50,000 lbs., white, No. 28; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 10,000 lbs.
- * Barton, Duer & Koch Paper Co. . .2945c

25% Bond, White and Colored

No. 107—850,000 lbs., white, No. 32; flat, cut any size, and cut size 8x10½ ins., min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
- * Howard Paper Mills (Aetna Div.) (150,000 lbs.) ..... .2406c

No. 109—1,250,000 lbs., No. 40; flat, cut any size, and cut size 8x10½ ins., min. width 21 ins., max. width 48 ins.; min. order, 20,000 lbs.
- * Howard Paper Mills (Aetna Div.) (200,000 lbs.) ..... .2308c

No. 112—10,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 26; flat, cut 34x44 ins.; min. order, 5,000 lbs.

No. 114—180,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
- * Howard Paper Mills (Aetna Div.) .2504c

No. 115—30,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
- * Howard Paper Mills (Aetna Div.) .2406c

50% White Bond

No. 122—30,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.; min. order, 10,000 lbs.
- * Barton, Duer & Koch Paper Co. . .2845c

100% White Bond

No. 129—4,000 lbs., No. 32; flat, cut any size, min. width 16 ins., max. width 38 ins.; min. order, 2,000 lbs.

Chemical Wood White Ledger

No. 150—100,000 lbs., No. 48; flat, cut any size, min. width 17 ins., max. width 48 ins.; min. order, 20,000 lbs.
- * R. P. Andrews Paper Co. (100,000 lbs.) ..... .1610c

No. 151—40,000 lbs., No. 64; flat, cut any size, min. width 17 ins., max. width 48 ins.; min. order, 10,000 lbs.
- * R. P. Andrews Paper Co. (40,000 lbs.) ..... .1610c

25% Ledger, White and Colored

No. 154—200,000 lbs., white, No. 48; flat, cut 28x34, 32x42, 34x44, and 38x48 ins.; min. order, 10,000 lbs.
- Walker Goulard Plehn Co. ..... .2465c
- * Howard Paper Mills (Aetna Div.) .2406c
- Frank Parsons Paper Co. ..... .2465c

No. 153—50,000 lbs., white, No. 64; flat, cut 28x34, 32x42, 34x44, and 38x48 ins.; min. order, 10,000 lbs.
- * Howard Paper Mills (Aetna Div.) .2406c
- Frank Parsons Paper Co. ..... .2465c

No. 156—50,000 lbs., white, No. 88; flat, cut 28x34, 32x42, 34x44, and 38x48 ins.; min. order, 10,000 lbs.

No. 157—60,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 64; flat, cut 34x44 ins.; min. order, one color, 10,000 lbs.

No. 158—90,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 88; flat, cut 34x44 ins.; min. order, one color, 10,000 lbs.

100% White Ledger

No. 176—5,000 lbs., No. 48; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, 4,000 lbs.
- * Barton, Duer & Koch Paper Co. . .4975c
- R. P. Andrews Paper Co. ..... .5024c

No. 177—10,000 lbs., No. 64; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, 10,000 lbs.
- * Barton, Duer & Koch Paper Co. . .4975c
- R. P. Andrews Paper Co. ..... .5034c

Chemical Wood, White and Colored Index

No. 182—450,000 lbs., white, 25½x30½—220; flat, cut 32x42 and 34x44, and 39x30 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
- R. P. Andrews Paper Co. ..... .1495c
- * Frank Parsons Paper Co. (400,000 lbs.) ..... .11875c
- * Whitaker Paper Co. (50,000 lbs.) ..... .1265c

No. 183—40,000 lbs., single-ply, 25½x30½—280; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
- Whitaker Paper Co. ..... .1265c (Rejected)
- R. P. Andrews Paper Co. ..... .1495c (Rejected)

No. 185—100,000 lbs., buff, 25½x30½—220; flat, cut 32x42 ins., with projecting colored-paper marker between each 100 sheets; min. order, 20,000 lbs.
- * Whitaker Paper Co. ..... .134c

50% Index, White and Colored

No. 188—300,000 lbs., white, 25½x30½—220; flat, cut 32x42, 32x48 and 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
- Barton, Duer & Koch Paper Co. . .2752c
- * Frank Parsons Paper Co. ..... .2480c
- Paper Corp. of U. S. ..... .3489c

No. 191—160,000 lbs., blue, buff, cherry, fawn, green, pink, salmon, and yellow; 25½x30½—220; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, one color, 10,000 lbs.
- Barton, Duer & Koch Paper Co. . .2852c
- * Frank Parsons Paper Co. ..... .2580c

No. 192—10,000 lbs., blue, buff, cherry, fawn, green, pink, salmon, and yellow; 25½x30½—280; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, one color, 10,000 lbs.

100% White Index

No. 196—70,000 lbs., 25½x30½—250; flat, cut 20½x30 ins.; min. order, 20,000 lbs.
- * Barton, Duer & Koch Paper Co. . .483c
- R. P. Andrews Paper Co. ..... .4912c

Coated Cover, White and Colored

No. 200—30,000 lbs., white, 20x26—120; flat, cut 26½x41 and 34x44 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
- * Whitaker Paper Co. ..... .1952c

Antique-Finish Cover, White and Colored

No. 202—100,000 lbs., 20x26—100; flat, cut 25½x39 ins.; min. order, 20,000 lbs.
- * R. P. Andrews Paper Co. ..... .1520c

No. 203—110,000 lbs., 20x26—100; blue, buff, dawn, quaker drab, terra cotta, gray, brown, green, goblin blue, granite, tea, and canary; flat, cut 25½x39 ins.; min. order, one color, 10,000 lbs.
- * Whitaker Paper Co. ..... .1475c

50% Laid Cover, Colored

No. 206—25,000 lbs., blue, cream, white, gray, and green; 20x26—120; flat, cut 25½x39 and 28x41 ins.; the laid lines to run the short direction of the sheet; min. order, one color, 2,000 lbs.
- * Frank Parsons Paper Co. ..... .2695c

Wood Manila

No. 208—90,000 lbs., 24x36—80; flat, cut 25x38, 32x42, and 40x52½ ins.; min. order, 20,000 lbs.
- * Frank Parsons Paper Co. ..... .1045c

No. 210—40,000 lbs., 24x36—80; rolls, 21 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores); min. order, 20,000 lbs.
- * Whitaker Paper Co. ..... .0835c

Chemical Wood Manila

No. 213—20,000 lbs., 24x36—140; flat, cut 32x42 ins.; min. order, 10,000 lbs.

Drumhead Manila

No. 217—5,000 lbs. 24x36—280; flat, cut 32x42 ins.; min. order, 5,000 lbs.
- Paper Corp. of U. S. ..... .2969c
- * R. P. Andrews Paper Co. ..... .3523c

No. 2 Kraft

No. 218—10,000 lbs., 24x36—80; flat, cut any size; max. length 36 ins., in bundles wrapped and tied; min. order, 10,000 lbs.
- * Cauthorne Paper Co. ..... .0986c

No. 218—40,000 lbs., 24x36—160; flat, cut any size; max. length 36 ins., in bundles wrapped and tied; min. order, 10,000 lbs.

No. 219—5,000 lbs., 24x36—80; cut any size, folded (25 sheets per fold), in wrapped bundles; min. order, 5,000 lbs.
- * Cauthorne Paper Co. ..... .1061c

No. 219—30,000 lbs., 24x36—100; cut any size, folded (25 sheets per fold), in wrapped bundles; min. order, 5,000 lbs.

No. 219—10,000 lbs., 24x36—120; cut any size, folded (25 sheets per fold), in wrapped bundles; min. order, 5,000 lbs.

No. 219—15,000 lbs., 24x36—160; cut any size, folded (25 sheets per fold), in wrapped bundles; min. order, 5,000 lbs.

No. 220—40,000 lbs., 24x36—70; 9 and 11 ins. wide, min. 22 ins., max. 24 ins. in diameter; rolls, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—10,000 lbs., 24x36—70; 13½ ins. wide, min. 21 ins., max. 22 ins. in diameter; rolls, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—5,050 lbs., 24x36—70/80; 17½ ins. wide, min. 21 ins., max. 22 ins. in diameter; rolls, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—5,000 lbs., 24x36—100; 36 and 48 ins. wide, min. 28 ins., max. 30 ins. in diameter; rolls, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—5,000 lbs., 24x36—140; 36 and 48 ins. wide, min. 28 ins., max. 30 ins. in diameter; rolls, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—30,000 lbs., 24x36—160; 36 and 48 ins. wide, min. 28 ins., max. 30 ins. in diameter; rolls, wound on wooden plugs, 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

White Gummed

No. 232—610,000 sheets (ungummed), No. 36; flat, cut 19x27½ and 22x34 ins.; min. order, 25,000 sheets.
- Whitaker Paper Co. (per M sheets) $24.11
- Whitaker Paper Co. (per M sheets) $29.79
- Bermingham & Prosser Co. (per M sheets) $23.89
- Bermingham & Prosser Co. (per M sheets) $25.75
- * Bulkley Dunton Co. (per M sheets) $18.60
- Bulkley Dunton Co. (per M sheets) $25.22
- Paper Corp. of U. S. (per M sheets) $23.55
- Paper Corp. of U. S. (per M sheets) $25.61
- Mudge Paper Co. (per M sheets) $19.09
- Mudge Paper Co. (per M sheets) $25.97
- * R. P. Andrews Paper Co. (per M sheets) $25.19
- Old Dominion Paper Co. (per M sheets) $23.48
- Old Dominion Paper Co. (per M sheets) $25.53

25% Blotting, White

No. 254—15,000 lbs., 19x24—160; flat, cut 19x24 ins., in wrapped bundles; min. order, 10,000 lbs.
- Walker Goulard Plehn Co. ..... .205c
- Stanford Paper Sales Co. ..... .1983c
- R. P. Andrews Paper Co. ..... .235c
- Old Dominion Paper Co. ..... .2056c
- Whitaker Paper Co. ..... .235c
- Bermingham & Prosser Co. ..... .198c
- Mathers Lamm Paper Co. ..... .203c
- * Gosset Buchanan Paper Corp. of U. S. ..... .1925c
- ..... .2050c

Desk Blotting, Colored

No. 255—40,000 lbs., light green, 19x24—208; flat, cut 19x24 ins., in wrapped bundles and tied; min. order, 10,000 lbs.
- Whitaker Paper Co. ..... .1575c
- Mead Board Sales Co. ..... .1504c
- Mathers Lamm Paper Co. ..... .1619c
- * Gosset Buchanan Paper Corp. of U. S. ..... .149c
- Walker Goulard Plehn Co. ..... .1625c
- Stanford Paper Sales Co. ..... .1535c
- R. P. Andrews Paper Co. ..... .1575c
- Old Dominion Paper Co. ..... .162983c

High-Finish Chemical Wood Manila Tag

No. 271—140,000 lbs., 24x36—208; flat, cut 28x34 and 38x48 ins.; min. order, 20,000 lbs.
- Whitaker Paper Co. ..... .1475c (Rejected)
- Whitaker Paper Co. ..... .1495c (Rejected)
- Paper Corp. of U. S. ..... .1824c (Rejected)

Jute Tag

No. 280—20,000 lbs., 22½x28½—200; flat, cut 34x44 ins.; min. order, 10,000 lbs.
- * Paper Corp. of U. S. ..... .225c
- R. P. Andrews Paper Co. ..... .2233c

No. 281—40,000 lbs., 22½x28½—280; flat, cut 34x44 ins.; min. order, 10,000 lbs.
- R. P. Andrews Paper Co. ..... .2233c
- * Paper Corp. of U. S. ..... .225c

Manila Board

No. 282—30,000 lbs., 22½x28½—400; flat, cut 22x34 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
Pulp and Paper Trading Co. .... .1135c
(Rejected)
* Paper Corp. of U. S. ..... .1244c

White Litho-Coated One-Side Cardboard

No. 302—5,000 sheets; white, flat, 22x34 ins., 6-ply, each 100 sheets fully banded; min. order, 5,000 sheets.
Whitaker Paper Co.
(per M sheets) $92.05
* R. P. Andrews Paper Co.
(per M sheets) $90.25

Railroad Board, White and Colored

No. 304—10,000 sheets, ash gray, green, orange, and red; flat, 22x34 ins., 4-ply, each 100 sheets fully banded; min. order, one color, 5,000 sheets.
* Walker Goulard Plehn Co.
(per M sheets) $66.50
No. 303—5,000 sheets; buff, flat, 22x28 ins., 14-ply, each 50 sheets fully banded; min. order, 5,000 sheets.

Wood Cardboard, Colored

No. 306—170,000 lbs., buff, 22½x28½—150; rolls, 20 and 23 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, 40,000 lbs.
Walker Goulard Plehn Co. ..... .1175c
Barton, Duer & Koch Paper Co. . .125c
Barton, Duer & Koch Paper Co. . .13c
* Frank Parsons Paper Co. ..... .0990c
No. 307—50,000 lbs., buff, 22½x28½—150; flat, cut 32x42 ins.; min. order, 20,000 lbs.
Walker Goulard Plehn Co. ..... .1375c
Barton, Duer & Koch Paper Co. . .1425c
* Frank Parsons Paper Co. ..... .11c
No. 308—10,000 lbs., melon, 22½x28½—184; flat, cut 20x30 ins.; min. order, 10,000 lbs.
No. 309—180,000 lbs., blue, buff, green, melon, pink and yellow; 22½x28½—184; rolls, 20 ins. wide, 36 ins. in diameter (3-inch fiber cores); min. order, one color, 20,000 lbs.
* Barton, Duer & Koch Paper Co. . .13c

Chemical Wood Tan Board

No. 310—100,000 lbs., 22½x28½—200; flat, cut 25x38, 28x38, and 34x44 ins.; min. order, 10,000 lbs.
Whitaker Paper Co. ..... .1395c
(Rejected)
* R. P. Andrews Paper Co. ..... .173c

United States Postal Card Paper

No. 325—7,500,000 lbs., 22½x28½—188; rolls, 33 ins. wide, 36 ins. in diameter (6-inch iron or metal capped returnable fiber cores); min. order, 40,000 lbs.
* Whitaker Paper Co.
(3,000,000 lbs.) ..... .1040c
* R. P. Andrews Paper Co.
(2,700,000 lbs.) ..... .0951c
* Frank Parsons Paper Co.
(1,800,000 lbs.) ..... .09275c
No. 327—100,000 lbs., 22½x28½—188; rolls, 22 ins. wide, 36 ins. in diameter (6-inch iron or metal capped returnable fiber cores); min. order, 40,000 lbs.
Whitaker Paper Co. ..... .1040c

Pressboard, Colored

No. 351—5,000 sheets; red, flat, cut 30x36 ins., thickness .0140 in.; min. order, 5,000 sheets.
* R. P. Andrews Paper Co.
(per C sheets) $17.97

Newsboard

No. 360—150,000 lbs., 26x38; No. 100; flat, cut any size, min. width 21 ins., max. width 40 ins. (To be guillotine-trimmed square on four sides.) Min. order, 10,000 lbs.
Whitaker Paper Co. ..... .0545c
Mathers Lamm Paper Co. ..... .157c
Mathers Lamm Paper Co. ..... .03825c
Mudge Paper Co. ..... .0556c
* R. P. Andrews Paper Co. ..... .0500c
Old Dominion Paper Co. ..... .0555c

Binder's Board, No. 1 Quality

No. 365—80,000 lbs., No. 1, 25¼x30¼ ins., Nos. 16, 18, 20, 25, 30, and 40; flat, to trim 25x30 ins.; min. order, 5,000 lbs.
Whitaker Paper Co. ..... .07968c
Whitaker Paper Co. ..... .0714c
Mudge Paper Co. ..... .09c
* Barton, Duer & Koch Paper Co. . .0940c
R. P. Andrews Paper Co. ..... .0685c
No. 367—30,000 lbs., No. 1, 25¼x30¼ ins., Nos. 12 and 20; flat, to trim 34x44 ins.; min. order, 5,000 lbs.
Mudge Paper Co. ..... .07c
* R. P. Andrews Paper Co. ..... .1685c

Chestnut Cover Board

No. 368—150,000 lbs., 25¼x30¼ ins., Nos. 17, 19, 21, 25, 31, and 41; flat, to trim 25x30 ins.; min. order, 5,000 lbs.
Mead Board Sales Co. ..... .068c
Mead Board Sales Co. ..... .07175c
Mead Board Sales Co. ..... .06225c
Mead Board Sales Co. ..... .072c
No. 370—170,000 lbs., 25¼x30¼ ins., Nos. 16, 19, 24 and 31; flat, to trim 25¼x37¼ ins.; min. order, 20,000 lbs.
Mead Board Sales Co. ..... .07175c
* Mead Board Sales Co. ..... .072c
* Mead Board Sales Co. ..... .06825c
* Mead Board Sales Co. ..... .06825c

PAPER MARKET

Fine Papers: Reported by Chairman E. E. McCULLEY.

Trade talk relates largely to when and how a better demand will appear, the size of inventories, who has them and whether they will be consumed before volume replacements are undertaken, or whether they will be maintained as a semispeculative hedge against an uncertain future.

Partly fact and partly fancy — a jobber describes the situation by saying that, if shortages continue, new warehouses will have to be built to take care of inventory. A survey of your local area warehousing situation will emphasize his point.

In the rag section, a new cotton crop offers some interesting speculation on availability and price of cotton linters at less than OPS ceilings. However, since cotton is politically sacrosanct, cotton and subsidies being almost one word, not too much can be expected. A subsidy is simply a tax on a majority for the benefit of a minority. When factually described, its fancied virtues disappear.

Considerable price pressure is on cotton cuttings and they are softening under the strain of reduced demand at current asking prices. Better availability of cotton waste overseas is relieving the pressure of export demands on domestic stocks.

Boxboard: STUART T. EDGERTON, *United States Rubber Company*, New York, N. Y.

There is very little change in the boxboard situation over the past month. Production is approximately the same, but new orders and unfilled orders are definitely down. The backlog reported is continually dropping. The price situation continues to be abnormal. Every indication should point to lower prices, but manufacturers and distributors are resisting that trend. Some premiums, however, are being eliminated.

Paper Containers: LEE R. FORKER, *Quaker State Oil Refining Corporation*, Oil City, Pa.

The expected Summer demand has failed to materialize for paper containers, resulting in less forward buying. Deliveries are more prompt and sales solicitation is more active than it has been for many months. Supplies are adequate.

Paper container inventories are declining, and paper stocks are reported increasing, both at the mill and at box fabricators.

Quality remains generally good, and it is indicated that prices may soften before the expected Fall demand increase. It is doubtful if forward buying, under current demand status, will be a factor, even though rumors indicate a possible OPS higher price ceiling for paper containers.

West Coast Conditions: HORACE DUCKENFIELD, *Metropolitan Life Insurance Co.*, San Francisco, Calif.

Demand in the majority of lines in the paper industry in the West continues light, to the point where some grades are now distinctly easier to obtain, not only in smaller quantities from local stocks, but in larger quantity shipments from the mills. This situation applies mainly to the coated hooks, cover papers, text papers and most of the bristols.

However, rag content papers, sulphite bond, duplicator stock and uncoated offset book seem still to be in short supply.

There is an indication that kraft wrapping paper and bags are easing up slightly; at the same time, converted items, sanitary papers, cups, towels, napkins, etc., are in very much better condition than at our last report.

It is generally felt in the West that, if demand should pick up for only a few weeks, conditions would quickly be back where they were a few months ago, with everything in very short supply.

Report prepared by the Paper Committee of the National Assn. of Purchasing Agents, under the supervision of Chairman Edgar E. McCulley, Courier-Journal Lithographing Co., Inc., Louisville, Ky.

FIGHTING PAPER WANTED

Invitation to Bid has been tested by the New York Quartermaster Procurement Agency, 111 East 16th street, New York 3, N. Y., on QM-30-280-52-188, covering Wrapping, Greaseproof, Rolls, (Various), 50,240 rolls.

Bids will be opened October 1, 1951 at 3:00 P.M. (EST) at the New York Office. This procurement is for the U. S. Army.

QM-30-280-52-178, covering Tape, Paper, Kraft, Gummed, Medium Weight, 2" x 3" Wide x 600 ft., 27,000 rolls.

Bids will be opened September 20, 1951, at 11:00 A.M. (EDST) at the New York Office. This procurement is for the U. S. Army.

QM-30-280-52-182, covering Tape, Paper, Kraft, Gummed, Medium, Weight, 3" Wide, 600 ft. Long, 155,130 rolls.

Bids will be opened September 28, 1951, at 10:00 A.M. (EDST) at the New York Office. This procurement is for the U. S. Army.

QM-30-280-52-198, covering Tag, Shipping, Cloth, and Paper, with Wire and with Twine String, 30,782,000 each. Bids will be opened October 15, 1951 at 3:00 P.M. (EST) at the New York Office. This procurement is for the U. S. Army.

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$114.00/116.00
Sheets	130.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— per cwt., 40# base wgt.

Standard Wrapping Rolls	$7.75/ —
No. 1 Wrapping Rolls	8.25/ 8.50
Standard Bag	7.50/ —

Tissue— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$2.25 /$2.35
Wh. No. 1 MG	2.25 / 2.40
Wh. No. 1½	1.95 / 2.05
Wh. No. 2	1.75 / 1.85
Kraft Anti-Tar 20x30	2.12 / 2.25
White Anti-Tar 20x30	2.20 / —

Toilet— per case of 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x3	6.60/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x3	9.85/ —
Per Case of 80 roll —2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x3, 2-ply	$8.95/10.65

Paper Towels— per case of 5750

Wh. Jr. M'fit'd 9½x9½	$4.40
Br. Sr. M'fit'd 9½x12	4.10
Br. Jr. M'fit'd 9½x9½	3.90
Br. Jr. Sgl. fold 9½x10½	3.95
Bleached 7½x11, 24/25 rolls	$7.00/7.55

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets*	$20.55/22.55
Reg. Jute M.F. 40-lb., sheets*	19.30/21.30
Wrapping Manila	8.75/10.30
Printing Manila	10.50/12.00
* Less usual allowance for rolls.	

Gummed Tape— per bdl., 500 bdls or more

70-lb. .075 ct. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 500 ft. GSI	8.38 / —
35-lb. 500 ft. GSO	6.21 / —

MARKET WOOD PULP

Third Quarter Contract Prices, Per Short Air-Dry Ton

	Varying freight allowances		On Dock Atlantic Ports		
	*U. S.	Canadian	*Swedish	*Finnish	*Norwegian
Groundwood	$92.50/ —	‡$95.00/100.00			
Sulfate, Bleached	143.00/ —	190.00/200.00	$230.00/ —	$230.00/ —	$230.00/ —
Semi-bleached Sulfate	140.00/ —				
Sulfate, Unbl.	132.50/ —	145.00/175.00	200.00/ —	200.00/ —	
Sulfite, Bichd.	146.00/ —	160.00/175.00	225.00/ —	225.00/ —	225.00/ —
Sulfite, Unbichd.	132.50/ —	150.00/160.00	200.00/ —	200.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —			
Soda, Bichd.	140.00/ —	151.00/160.00			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwood Screenings	60.00/ —				
Unbichd Sulfate Siderums	132.50/ —				
Stand. News. Siderums	92.50/ —	106.00 —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

Boards per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Bichd. Mis. L-d. Chip	147.50/ —
White Pat. coated 020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers—
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$74.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	62.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$19.00/$20.50
Plain	18.40/ 19.50

Ledgers	4 Ctns.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.90/$24.65
No. 2	22.15/ 23.40
No. 3	21.90/ 22.40
Machine Coated	
No. 1	‡ $18.40/$18.90
No. 2	16.65/ —
Uncoated	
No. 1 Antique (Watermarked)	‡ $18.65/$19.65
Offset	‡ 18.65/ 19.90
A Grade E. F.	‡ 18.10/ 19.50
A Grade S. C.	18.65/ 19.40
B Grade E. F.	18.40/ —
B Grade S. C.	17.40/ 19.15

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.)

	New York	Philadelphia	Boston	Chicago
	Sept. 17	Sept. 4	Sept. 17	Sept. 6
No. 1 Mixed Paper	$14.00/ 17.00	$16.00/ 18.00	$17.00/ —	$15.00/ —
Boxboard Cuts	20.00/ 25.00	16.00/ 20.00	23.00/ —	18.00/ —
Mill Wrappers	20.00/ 30.00	20.00/ 22.00	20.00/ —	18.00/ —
No. 1 News	16.00/ 17.00	17.00/ 18.00	— /19.00	18.00/ —
Over-issue News	23.00/ 30.00	23.00/ 26.00	22.00/ 24.00	21.00/ —
Corrugated Containers	30.00/ 34.00	34.00/ 35.00	34.00/ 36.50	30.00/ —
New Corrugated Cuts	Nominal	36.00/ 37.00	45.00/ 55.00	35.00/ —
Double Kraft Ld. Corr. Cuts	90.00/ —	90.00/ 95.00	90.00/ —	90.00/ —
100% Kraft Corr. Cuts	120.00/130.00	110.00/115.00	110.00/ —	110.00/ —
Used Kraft Bags	85.00/ 90.00	65.00/ 70.00	65.00/ 96.50	35.00/ —
No. 1 Brown Kraft Paper	Nominal	70.00/ 75.00	70.00/ 90.00	35.00/ —
Super Assorted Br. Kraft	Nominal	80.00/ 85.00	80.00/105.00	75.00/ —
New Br. Kraft Env. Cuts	160.00/180.00	135.00/ —	140.00/160.00	120.00/ —
New Br. Kraft Cuts	150.00/175.00	130.00/135.00	130.00/160.00	110.00/ —
No. 1 Gdwd Shvs.	65.00/ 70.00	50.00/ 55.00	65.00/ 75.00	40.00/ —
White Newsblanks	80.00/ 90.00	70.00/ —	70.00/ 80.00	60.00/ —
No. 1 Flyleaf Shvs.	75.00/ 80.00	65.00/ 70.00	85.00/100.00	55.00/ —
No. 1 Soft Wht. Shvs.	150.00/170.00	160.00/165.00	165.00/185.00	150.00/ —
Super Soft Wht. Shvs.	190.00/200.00	170.00/175.00	180.00/200.00	160.00/ —
Hd. Wht. Shvs.	175.00/190.00	180.00/190.00	180.00/205.00	170.00/ —
Hd. Wht. Env. Cuts	180.00/215.00	200.00/215.00	190.00/225.00	180.00/ —
New Manila Env. Cuts	140.00/150.00	140.00/150.00	130.00/155.00	80.00/ —
Col. Tab Cards	110.00/120.00	100.00/ —	85.00/110.00	95.00/ —
Manila Tab Cards	160.00/170.00	160.00/ —	160.00/190.00	165.00/ —
No. 1 Mixed Ledger	90.00/100.00	80.00/ 85.00	77.50/100.00	95.00/ —
White Ledger	110.00/115.00	105.00/115.00	105.00/120.00	115.00/120.00
No. 1 Book & Mag.†	37.00/ 45.00	38.00/ 40.00	38.00/ 50.00	17.00/ —
No. 1 Rep'd. Hvy. Books‡	43.00/ 50.00	43.00/ 50.00	45.00/ 60.00	40.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unbichd. Muslins	21.00
Bichd. & Unbichd. Underwears	21.00
Bichd. Canton Flannels	21.00
No. 1 Light Silesias	16.00
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.25/ 5.00
Thirds and Blues, Repacked	4.00/ 4.25
No. 1 Roofing Rags	nominal
No. 2 Roofing Rags	nominal
No. 3 & 4 Roofing Rags	nominal

Bagging
(Prices to Dealers, f.o.b. N. Y.)
PRICES NOMINAL

	Per 100 lbs.
Foreign Gunny	$5.00/$5.50
Domestic Gunny, No. 1	5.00/ 5.20
Heavy Wool Tares	5.50/ 6.00
Foreign Manila Rope	8.50/ 8.75
Domestic Manila Rope	9.00/ 9.25
Jute Strings	6.00/ 6.50
No. 1 Sisal Strings	8.00/ 8.25
Paper Mill Tares	4.25/ 4.50
Foreign Scrap Burlap	4.25/ 4.50
Domestic Scrap Burlap	4.75/ 5.50
Austr. Wool Pieces	7.50/ 8.50
New Burlap Cuttings	7.00/ 7.50

MATERIALS

Aluminum sulfate:		
comi. bags, wks. ..... cwt.	1.65	
iron-free c.l.	3.25	
Alcohol, ethyl:		
tax free, dnm. c.l. .....gal.	1.01	/ 1.05½
drld. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dnm.		
c.l. fc. alld. ....gal.	.44	
Casein, acid prec.:		
dom. sh. pt. c.l. .....lb.	.38	/ .41½
imp. ex. dock .....lb.	.30	/ .40
Caustic soda:		
c.l. wks. solid, 76%, cwt.	3.35	
9ak. & grd. 100-lb. drums...	3.75	
liquid 50% tanks....	2.55	
liquid 70% tanks....	2.65	
China clay:		
dom. air-float. filler, c.l. wks. ton	10.00	
water-washed, tramp, filler....	11.00	
coating	17.60	/30.50
imported, ex whse....short ton	15.20	/28.35
Chlorine:		
single-unit tanks, works..cwt.	2.70	
multi-unit .....cwt.	3.20	/ 4.40
Formaldehyde:		
USP, inb. dms, c.l. wks....lb.	.0625/	.0675
l.c.l., E. wks.	.0675/	.0725
Fuel oil:		
Bunker C, No. 6 Cal. bvy		
tanks, refinery .....bbl.	1.95	/ 2.15
light .....bbl.	2.00	/ 2.25
Hydrogen peroxide:		
USP, 35% cbys. E. of Miss. lb.	.23½/	.26½
Lime:		
hydrated, bags, wks. .....ton	13.50	
Rosin:		
B gum, drms, c.l. Savan..cwt.	7.00	/ 9.08*
G, H, I, K .....cwt.	8.55	/ 9.49*
FF, wood, dc. .....cwt.	6.50	/ 7.30
*OPS Ceiling, CPR 52.		
Rosin size:		
70%, gum & pale grds, tank cars, south, sh. pt. ....cwt.	7.00	/ 7.10
Salt cake:		
dom. bulk, c.l. wks.....ton	17.00	
wks. frt. all. .....ton	20.00	/22.00
Soda ash:		
light, 58%, bags, wks.... ...	1.50	
bulk ....cwt.	1.27	
Sodium silicate 40°:		
turbid. c.l. wks. .....cwt.	1.30	/
l.c.l. wks.	1.60	/ 1.85
Sodium peroxide:		
dms. c.l. E. of Miss.....lb.	.21	
l.c.l. do. .....lb.	.21½/	.22
Soybean, protein:		
chem. isol, wks. c.l. .....lb.	.24	/ .28
Cinn. and Chic.		
Sulfuric acid:		
60° Be. cbys. cl. wks.... cwt.	1.75	/ —
l.c.l. wks. .....cwt.	2.85	/ 2.85
Sulfur:		
crude, c.l. mines, contract, long ton	21.00	/22.00
f.o.b vessels Gulf	22.50	/23.50
Sulfur dioxide:		
quad, comi. cyl. wks.....lb.	.09	
multi-unit cars .....lb	.0835	
Starches:		
pearl corn, bags, c.l. wks...cwt.	6.09	/ —
white dextrines, c.l. wks...cwt.	7.48	/ —
potato, Idaho, c.l. wks....cwt.	5.75	/ —
potato, Maine, c.l. wks....cwt.	6.00	/ —
tapioca, conv. dextrines...cwt.	8.00	/ 8.75
low, Siam, ex dock N.Y.....	5.50	/ 5.75 nominal
Talc:		
domestic, 50-lb. sacks, c.l. wks. .....ton	25.00	/30.00
Titanium dioxide:		
anastase, c.l. dcld., bags....lb.	.21	/ .21½
l.c.l. dcld. .....lb.	.22	/ .22½
rutile, c.l. dcld. .....lb.	.23	/ .23½
l.c.l. dcld. .....lb.	.24	/ .24½

SUPPLIERS

REICHHOLD CHEMICALS, INC., Detroit, has transferred Mark K. Pinkerman, for the past five years advertising manager, to the executive offices recently opened by his company in the International Building, Rockefeller Center, New York City, effective September 17.

RODNEY HUNT MACHINE CO. has announced the relocation of its southern regional office from Greenville, S. C., to Room 909, Wilder Bldg., 237 S. Tryon street, Charlotte 2, N.C. A. P. Hyde, Rodney Hunt Sales Engineer, is in charge, T. W. Kitchen, formerly at Greenville, has resigned from the company.

NATIONAL ANILINE DIV. of Allied Chemical and Dye Corp. has named Walter M. Ralph, director of research and development for the past 22 years, assistant to the president. Mr. Ralph's present duties will be assumed by Dr. Wesley Minnis, who for two decades has been assistant plant manager in charge of research and development at the Buffalo, N. Y., plant of National Aniline Division.

LEEDS & NORTHRUP CO., manufacturers of electrical measuring instruments, automatic controls, and heat-treating furnaces, has appointed Dr. Raymond C. Machler, 3033 Queen Lane, Germantown, Pa., as director of research and a member of the executive committee. Dr. Machler, formerly associate director of research, succeeds I. Melville Stein, who recently was elected to the newly created post of executive vice-president.

DOW CHEMICAL CO. has elected Dr. Mark E. Putnam to the newly created position of executive vice-president. Dr. Putnam, whose service with Dow dates back to 1915, has been a director since 1941 and a vice-president since 1942.

MARSHALL, NEIL & PAULEY, INC., have further extended their activities into Louisiana and Mississippi and have appointed Landry Murphy, 3223 Jena St., New Orleans, La. as district manager of this territory. Among the manufacturers represented by Marshall, Neil & Pauley, Inc., are Roots-Connersville Blower Corp. (one of the Dresser Industries), centrifugal and rotary positive industrial blowers; Fluor Corp., water cooling towers; Richard M. Armstrong Co., heat transfer equipment; Farr Co., air filters; American Machine & Metals, Inc., industrial ventilation equipment.

WESTINGHOUSE ELECTRIC CORP., Sharon, Pa., has named C. W. Miller manager of Large Power Transformer Engineering for the Transformer Division. He succeeds the late W. G. James, who died unexpectedly on August 10.

AMERICAN CYANAMID CO. has elected E. D. Powers, vice-president in charge of production, to the board of directors. A. J. Campbell, general manager of the industrial chemical division, and Howard Huston, formerly assistant to the president, have been named vice-presidents. L. C. Duncan was elected assistant to the president, J. J. Murray and G. C. Walker, assistant treasurers, and J. W. King and W. B. Ward, assistant controllers.

A. E. STALEY MANUFACTURING CO., corn and soybean processor, has appointed Dr. Edward G. Samsa to the research staff.

SOLVAY SALES DIV., Allied Chemical & Dye Corp., have made the following executive appointments: Lester B. Gordon, vice-president; Denman Peniston, director of sales; and John H. Elleman, assistant director of sales.

GRAVER WATER CONDITIONING CO., manufacturers of equipment for all water treating processes, announces the appointment of Harold R. Fosnot as Eastern sales manager with headquarters at the company's home office, 216 West 14th street, New York. Replacing Mr. Fosnot as the Graver Chicago district manager, with head-

quarters at 332 S. Michigan Avenue, will be Herman M. Ross, who had previously been the Cleveland district manager. In Cleveland, Graver will now be represented by Richard E. Lewis.

CHARLES BECK MACHINE CORP., Philadelphia, Pa., converting machinery firm, has elected Milan F. Dudeff vice-president–sales and engineering. Mr. Dudeff previously served for several years as manager of sales and engineering for Beck. In addition to his election as vice-president, he also was appointed treasurer of the company. Henry E. Scherer, long an associate of Charles Beck Machine Corp., was installed as secretary. Carl A. Beck and Richard H. Beck continue as president and first vice-president respectively of the corporation.

A. O. SMITH CORP., with offices at 310 S. Michigan Avenue, Chicago, has appointed John B. Madden hydraulic sales manager for the North Central district.

SHARTLE BROS. MACHINE CO. Div. has changed the name of its new velocity-type cleaning unit for dirty stock previously known as Hydraclone to Hydrafuge Separator. The Hydrafuge Separator is a high-velocity unit utilizing centrifugal forces as the means of separating heavier than water material from paper stock — its basic application is in the filler stock cleaning system.

BLACK-CLAWSON CO., Hamilton, Ohio, has appointed Frank T. Peterson as assistant to the general manager of the Hamilton division and George M. Pennock, as chief development engineer, also of the Hamilton division of Black-Clawson.

H. W. BUTTERWORTH & SONS CO., makers of calender rolls, have recently completed a $300,000 plant expansion at Bethayres, Pa. The new building, with 68,000 sq. ft. of floor space, houses the pressed roll department and includes the most modern machinery for the manufacture of calender rolls for coated stock, super and glassine.

RELIANCE ELECTRIC & ENGINEERING CO. has elevated Paul W. Arnold and Richard A. Geuder to new responsibilities in the company's general sales organization.

Mr. Arnold, who has served as manager of Product Sales for the past several years, moves up to the newly created post of Executive Assistant to the Sales vice-president. Mr. Geuder, who since 1944, has headed the company's application engineering work, becomes manager of a new department of Applied Engineering and Industry Sales, the latter representing a consolidation of other specialized activities, including Contract Sales, Federal and Marine Sales, and general industry applications.

ALLIS-CHALMERS MANUFACTURING CO. have elected five new officers and advanced three other officers.

Four new vice-presidents were elected. W. G. Scholl, general sales manager of the tractor division, was named vice-president in charge of sales for the tractor division, and C. W. Schweers, director of sales in the general machinery division, was named vice-president in charge of sales for the general machinery division.

J. F. Roberts, director of engineering in the general machinery division, was named vice-president in charge of engineering for the general machinery division, and W. A. Yost, manager of the mechanical power department, was named a vice-president of the general machinery division.

G. F. Laongenohl, assistant treasurer, was elected to the position of treasurer and appointed assistant secretary. N. D. Johnson, assistant secretary, will continue to serve in that capacity and assume additional responsibilities as assistant treasurer.

Two new assistant comptrollers were also named. They are E. J. Dietrich, assistant to the comptroller, and T. D. Lyons, works comptroller.

FORD, BACON & DAVIS, engineers-constructors, of New York, Chicago, Philadelphia and Los Angeles, have elected R. P. Westerhoff vice-president and director in charge of the engineering department.

IF IT'S A DEXTRINE, STARCH OR ADHESIVE PROBLEM
"PUT IT UP TO M.N.I."
Let our paper department experts give you valuable aid on: 1. Tub and Coating Starches, 2. Tapioca Flours, 3. Converted Potato Starches, 4. Laminating Adhesives, 5. Bag Pastes, 6. Corrugating Starches, 7. Mannogal (Mannan-Galactan) Products. WRITE TODAY!
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VICTORY BEATER
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Paper Mill Machinery
Hoosick Falls • New York • U. S. A.

THE CARTHAGE MACHINE COMPANY
CARTHAGE, NEW YORK
Manufacturer of
Machinery and equipment for Mechanical and Chemical Pulp Mills and Special Machinery

THE RUST ENGINEERING COMPANY
Engineers and Constructors
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Complete Service for
PULP AND PAPER MILLS—PLANTS AND FACILITIES
DESIGN, CONSTRUCTION, MODERNIZATION

FIBER RESEARCH AND SERVICE
Semi-Chem. and Chemical Pulp Processes
Pilot Plant Facilities
THE KINSLEY CHEMICAL COMPANY
Cleveland 11, Ohio

MISCO
STAINLESS STEEL CASTINGS
FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

Shartle Sales Personnel Tour Dilts Lab.

Highlighting a recent Black-Clawson, Shartle, Dilts general sales meeting was a tour through the recently expanded Dilts Laboratory at Fulton, N. Y.

Dilts laboratory technicians and research engineers conducted the guided tour and made experimental runs through the unique 700 gallon Hydrapulper and Hydra-Jordan system. Technicians in the wet lab and paper testing lab demonstrated various testing equipment making complete analysis of samples prepared in the laboratory system.

All equipment employed in the laboratory system is Shartle-Dilts built and comprises a 5 ft. diameter batch-continuous Hydrapulper arranged with a wide range variable speed drive, this 700 gallon capacity Hydrapulper will handle 350 pounds B.D. batches at 6 percent consistency. A duo-cycling system comprising two 700 gallon cycling chests, a class HMS pump, a No. 00 Hydrafiner and a No. 00 Jordan with all valves, lever controls, consistency regulator and motors controlled from a centralized control panel constitutes the balance of the system.

Also included in the flexible system is a 500 g.p.m. experimental Hydrafuge separator for removal of rejects from dirty stock and a model HP stock drubber.

All pulping and refining tests made in the semi-commercial system at the Dilts Laboratory are comparable to actual paper mill operations.

Any type of test can be performed in the Dilts Lab. Here a Technician demonstrates the freeness tester.

Dilts Research Engineer explains the Lab Duo-cycling and refining system.

Lab. Hydrapulper Available

The Laboratory facilities of the Dilts Machine Works, division of The Black-Clawson Co., have on hand a number of 3 ft. diameter pilot plant hydrapulpers which can be made available to any mill desiring to test the merits of the hydrapulper as applied to their own stock preparation systems.

The design and construction of these 3 ft. units follows the same principles as applied to the larger commercial sizes of hydrapulpers. Several of the same size units are in daily operation at institutions teaching paper technology while still others have been sold and placed in commercial use for specialized paper and other allied products.

A. O. SMITH CORP. has appointed Alfred E. Treen manager of personnel and purchasing at the Houston Works, succeeding F. B. Dunn who has resigned from the company. Mr. Treen took over his responsibilities at Houston September 1 under Group Executive C. R. Rigby, manager of the Houston plant.

Mr. Treen has been with A. O. Smith's personnel administration staff since November, 1946, when that activity was made a top management function. Since that time he has participated in forming and administering the company's overall personnel policies.

Previously he had been in personnel, safety and industrial relations work with the United States Steel Corp.

In his function as manager of purchasing at A. O. Smith's Houston plant, Mr. Treen also will be responsible for all traffic activities, including the receiving department.

INLANDER-STEINDLER PAPER CO. have disposed of the land and building which they have occupied for more than 40 years at Marble & Sheffield Streets, Hammond Branch, and have taken title to a very much larger building located at 4535 Calumet Avenue on U.S. Highway 41, Hammond, Ind. Remodeling of their new building is now in process and it is expected that operations at the new location will start about the middle of October.

HERCULES POWDER CO. will transfer Robert A. Collins, assistant superintendent at the Brunswick, Ga., plant, to the company's plant at Hattiesburg, Miss., October 1, as assistant plant superintendent.

His arrival will give the Hattiesburg plant to assistant superintendents; Wayne C. Russell having been assistant superintendent since April, 1950.

SIGNODE STEEL STRAPPING CO. of Chicago have transferred James R. Elsinger to their Baltimore district. He will reside in Richmond, servicing part of Virginia and all of North Carolina.

GENERAL ELECTRIC CO.'S now-famous "More Power to America Special" exhibit train, has reached the end of a 28,000-mile road.

Workmen at the company's Schenectady (N.Y.) Works are now completing the six-week task of dismantling the silver, 10-car streamliner and its 2001 exhibits of industrial products and techniques for the production and application of electric power.

The much-traveled symbol of American enterprise spent 14 months on a tour of the nation's industrial firing line. During the tour, the train was exhibited in 116 cities from coast to coast and played host to a select audience of nearly 200,000 industrialists and business and civic leaders.

GARDNER TRAINING COURSE

The first Gardner Laboratory training course on appearance measurement of the 1951-52 season will be held the week of October 1, 1951 at the company's plant in Bethesda, Md. As in the previous three seasons, each of the courses for the coming year will last for one week. There will be two lectures on each of five days, with periods for laboratory work in between and on at least two of the evenings.

The training course is designed to help technologists in the paint, paper, ceramic, plastics, textile, leather, oil, rubber and food fields measure color, reflectance, gloss and other appearance attributes of their materials. Each class is limited to 20 students, maximum number that can be accommodated for laboratory work and individual discussion, which is provided. Laboratory periods allow for work by the students, preferably on specimens brought by them.

The course is educational, not promotional. Emphasis is on the fundamental, optical and psychological factors which cause materials to appear as they do. It is shown that color and gloss are not simple, unique attributes of materials like density and temperature. Rather, they are the composite results of complex, physical phenomena involving structure of materials and the physical properties of ingredients.

There is a registration fee of $25.00 to cover lunches and part of the cost

ANSUL SULFUR DIOXIDE CUTS COSTS IN PAPER PRODUCTION

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ANSUL
LIQUID SULFUR DIOXIDE

. . . is the quality standard of the industry . . . 99.9+% (by weight) pure.

. . . is shipped in 150-lb. cylinders, 2000-lb. ton drums, 30,000-lb. tank trucks, 40,000 and 60,000-lb. tank cars.

. . . is available for immediate shipment, in any desired quantity to any domestic and approved foreign destination.

In the paper industry the use of Ansul Sulfur Dioxide . . . *plus the services of the Ansul staff of chemical engineers* . . . has resulted in new economies, better controls and improved quality in a variety of applications.

GROUNDWOOD PULP MANUFACTURERS use Ansul Liquid Sulfur Dioxide as a neutralizer in their peroxide bleaching operation. It is safe and economical to use . . . *and improves brightness, too!*

NEUTRAL SULFITE PULP MANUFACTURERS have avoided costly delays and shutdowns by using Ansul Liquid Sulfur Dioxide to manufacture their own sodium or ammonium sulfite.

And the Ansul "Controlled SO_2 System" eliminates the need for burner gas, decreases costs and provides efficiencies well worth investigating.

Ask for information relating to your operations. Valuable data will be sent to you promptly and Ansul's chemical engineering staff will cooperate with you willingly and without cost or obligation.

ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICAL DIVISION MARINETTE, WISCONSIN

of materials used in the course. This is waived for owners of Gardner Laboratory appearance measuring instruments; or, it may be applied toward the subsequent purchase of any of the optical instruments sold by the Laboratory.

U. S. RUBBER CO. has named H. Gordon Smith, vice-president and general manager of the textile division, to the newly created post of executive vice-president. The new position was created because H. E. Humphreys, Jr., has been called upon to do double duty as president and chairman. William E. Clark, assistant general manager of the textile division, has been elected a vice-president and made general manager of the division. Mr. Smith and Mr. Clark will assume their new duties October 1.

R. Burke Morden

R. B. Honeyman

MORDEN MACHINES CO. elected R. Burke Morden, vice-president and general manager, to the presidency of the company. He fills the place vacated by the death in July of his father, C. W. Morden, founder and former president of the company. Also elected is R. Blakeley Honeyman as vice-president. He has been assistant general manager. Darrah Corbet is secretary-treasurer.

HERCULES POWDER CO. entertained a group of distinguished European scientists at its Experiment Station on August 31. Guests included Dr. Erich Adler, Swedish Forest Products Research Laboratory, Stockholm, Sweden; Dr. J. J. P. Staudinger, British Resin Products, Ltd., Glamorgan, South Wales; Dr. H. M. Stanley, The Distillers Co., Ltd., Great Burg, Epsom, Surrey, England; and Prof. Kurt Meyer of Geneva, Switzerland. Plans have been completed for more than 100 European scientists to visit the Hercules Experiment Station during the next two months.

SOUTHERN WHEEL DIV., American Brake Shoe Co. has appointed Eads Johnson, Jr., executive vice-president. He was formerly assistant vice-president.

Mr. Johnson started with Brake Shoe in 1934, after his graduation from Yale University. He entered sales work for the company's Brake Shoe & Castings Division in 1935. In 1949 he transferred to the sales department of Southern Wheel Division and in 1950 became assistant vice-president of that division.

FORESTRY

FIRE HAZARD 27 TIMES GREATER ON UNPROTECTED LAND

Protecting timberland from fire continues to pay big dividends in the United States, reports American Forest Products Industries, national sponsor of the Keep America Green program.

Acreage losses from fire on unprotected forestland last year was nearly 27 times greater than on land where some form of organized protection was in operation. Half of the country's 1950 forest fires and three-fourths of the acreage loss occurred on 10 percent of its timberland without protection.

Forestland under organized protection reached an all-time high during 1950 with the addition of another four million acres. A total of 573,186,000 acres of timberland was under some form of organized protection last year. Thirty-two different states provided protection for all state and private woodlands within their borders.

In issuing the report for 1950, American Forest Products Industries pointed out that more than 93 percent of the forest fires occurring on protected land were man-caused. There was an increase both in acreage and number of fires over 1949 when losses were held to an all-time low. Acreage burned in the average fire occurring last year was 74, five less than in 1949 On lands under organized protection the acreage burned per fire was held to 36.

Fires of incendiary origin in 1950, those maliciously or deliberately set, increased 50 percent over the previous year. A total of 40,122 incendiary fires was reported, nine-tenths of them in the South.

Second largest cause of forest fires on protected lands were careless debris burners with 18,747 fires to their discredit. Smokers were third with 18,259. Lightning was credited with causing 6,491 fires and careless campers caused 3,748.

LOGGERS MEET AT MARQUETTE

MARQUETTE, Mich. — Marquette will be the scene of an important meeting for the logging and pulpwood timber industry, when the Sixth Annual Lakes States Logging Congress is held September 27, 28 and 29.

Pulpwood and timber operators, paper mill representatives, executives, supply and equipmen men, safety engi-

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Modern Recovery Methods, designed and engineered by Fergusons, will stop profit leaks by turning WASTE into ASSETS.
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We make a specialty of "Ready Dressed" cogs which are READY TO RUN the moment driven and keyed. Write for circular "G" and instruction sheets free.
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neers, federal forest service and conservation representatives from three states, will be among the more than 600 delegates who are expected to register.

The 1951 sessions are expected to be the largest in the six-year history of the congress, an event which is assuming growing importance to all affiliates of the Timber Producers Assn., sponsor of the congress.

K. W. Haagensen, public relations director of the Allis Chalmers Co., will be speaker at the main session Friday evening; Harold Holman, assistant director of the forest products division of the National Production Authority, will discuss many of the industrial problems in connection with today's controls question and defense priorities; George MacIntire, of the forest service, Michigan Department of Conservation, and Abbott Fox, Iron Mountain, will speak on woods operations, and Gordon Connors, Wakefield, on woods products utilization.

Of considerable interest to delegates and the general public will be exhibits in the Palestra and demonstrations to be held in the area to the west and north of the building. Fifty-two companies, including many paper and pulp manufacturing firms, already have registered as exhibitors. Their displays will set forth graphically many of the problems and much of the research of the industry and the improvements in supply and equipment to date.

HUDSON BUYS TIMBER LAND

PALATKA, Fla. — The Hudson Pulp & Paper Corp. has purchased 240,000 acres of forest lands in Dixie, Gilchrist and Lafayette counties in northwest Florida from Perpetual Forests, Inc., a Wisconsin corporation, which has owned the property for about 50 years. The purchase price was not disclosed, but is reported to be about $3,500,000. Hudson will use the property in conjunction with its enlarged operations at Palatka, where its plant has been doubled in size from 200 to 400 tons of pulp a day.

The Hudson corporation plans to continue development of the property on an accelerated scale and also will engage in reforestation under a planned program of conservation.

This property is the largest remaining single tract of an original purchase of four million acres made by Horace Disston of Philadelphia in 1881 at a time when Florida was virtually bankrupt. Mr. Disston bought the four million acres at 25 cents an acre. Two years later he sold a large parcel to Sir Edgar Reed and associates of England, who conducted one of the largest sawing programs Florida has ever known. When the English company completed its program, the 240,000 acres now acquired by the Hudson corporation were sold to the Putnam Lumber Co. of Wisconsin. In 1945 the Putnam company's assets were distributed to stockholders, who organized Perpetual Forests, Inc.

The land involved in the sale comprises 70 per cent of Dixie County and parts of two adjoining counties. It is bounded on the east by the Suwannee River, immortalized by Stephen Foster's famous song, on the south by the Gulf of Mexico, on the west by the Steinhatchee River and on the north by U. S. Highway 19, the principal west coast highway of Florida. The Putnam company had pursued a program of reforestation and had built roads through the timber tract.

WAR AGAINST BEETLE

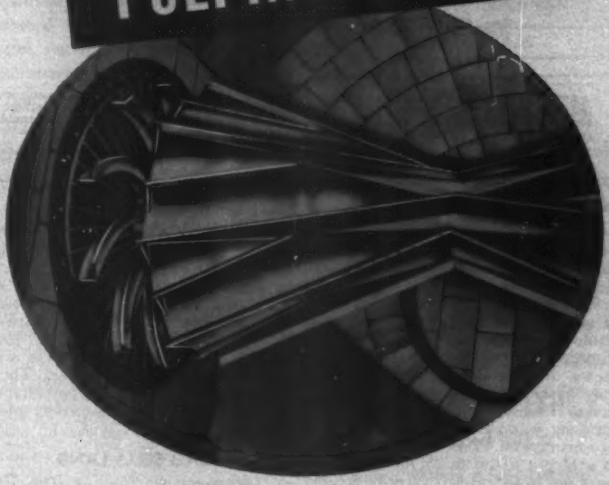
Thirty-four thousand beetle-infested Englemann spruce trees in Colorado were sprayed during the first 10 days of the 1952 campaign against this forest-killing insect, the U. S. Department of Agriculture has reported.

Since receiving the go-ahead signal from Congress at the end of August in the form of a million dollar appropriation, the Forest Service has established six 100-man camps, four of them manned by Indians. Two other camps now under construction will be manned by Indians. One is located in the Rabbit Ears area of the Routt National Forest; the other is on Redtable Mountain in the White River National Forest. No other camps are planned this fall.

E.D Jones

PULPING POWER

Rotor of No. 4 size Jones Pulp-Master, shown in tile tank installation in a leading midwestern mill. Capacity 4000 lbs. 6½% stock.



The rugged, one-piece fabricated rotor of the PULP-MASTER, placed well above the bottom of the tank, gives stock vigorous, continuous circulation — yet allows junk metal to drop to the tank bottom.

Its vanes force the stock outward, where the impellers rub and refine it against the fixed refining discs. Baled pulp, waste paper, machine broke — even glassine and wet strength — is completely disintegrated in 10 to 40 minutes.

Over 140 sold to date. Ask your Jones representative for details — or write for Bulletin 1019-B.

Jones PULP-MASTER

E. D. Jones and Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Aug. 11	Aug. 18	Aug. 25	Sept. 1	Sept. 8
1951	99.9	98.2	100.8	95.3r	80.5
	Aug. 12	**Aug. 19**	**Aug. 26**	**Sept. 2**	**Sept. 9**
1950	98.5	100.0	100.6	99.2	80.0

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	91.6	96.7	95.4	94.4	97.7	85.3	99.5	96.1	101.0	99.6	91.2	95.8
1951	99.3	101.3	101.9	102.8	102.5‡	100.2‡	89.4‡	99.3‡					

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	87.7	87.8	99.9	103.3	96.9	85.5	94.7	99.3
Year Average	88.1	89.4	101.1	104.3	96.2	88.6	95.8	

PAPERBOARD OPERATING RATIOS†

	Aug. 11	Aug. 18	Aug. 25	Sept. 1	Sept. 8
1951	94	93	94	93	71
	Aug. 12	**Aug. 19**	**Aug. 26**	**Sept. 2**	**Sept. 9**
1950	99	101	100	100	81

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	82	100	96	102	101	95	94
1951	102	105	104	105	104	103	84	94					

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "inch-hours" reported to the National Paperboard Association.

Mustering all the help available, the Forest Service went into action against the beetle less than two weeks ago. Employes were called in from other regions to help supervise the project, to take care of payrolls, procurement of supplies, and the hiring of laborers. Camp buildings were trucked from storage to the scene of operations, and crews, already alerted, were sent into the White River and Arapaho National Forests to start work. The spraying is done from the ground by two-man crews. Tree trunks are doused to a height of 30 to 35 feet, although trees not badly infested may be treated to a height of only 6 to 8 feet.

The Forest Service is hoping for dry weather and a late winter. If weather remains favorable until the middle of October, the Forest Service estimates that close to 400,000 trees will be treated this year.

Application of the insecticide does not save the treated trees, but it does kill the beetle. Primary aim of the Forest Service is to prevent the spread of the insect into other areas where it will destroy more timber. The insect-killed trees are a potential fire hazard and do not adequately protect watersheds.

UNION BAG SELLS LAND

JACKSONVILLE, Fla. — The Union Bag & Paper Corp., Savannah, Ga., has sold 195 acres of land on the Trout River in Jacksonville to the U. S. Navy Department for expansion of the Naval Bulk Petroleum Terminal, which adjoins it. Union Bag & Paper acquired the property in 1944 as a site for a pulp and paper mill, but since has expanded its Savannah facilities instead. The property also adjoins the site of the new pulp and paper mill being built by the St. Regis Kraft Corp. The purchase price of the land was $120,000.

OBITUARIES

S. Austin Bicking, recently resigned as treasurer and director of the S. Austin Bicking Paper Manufacturing Co., Downingtown, Pa., died on September 14.

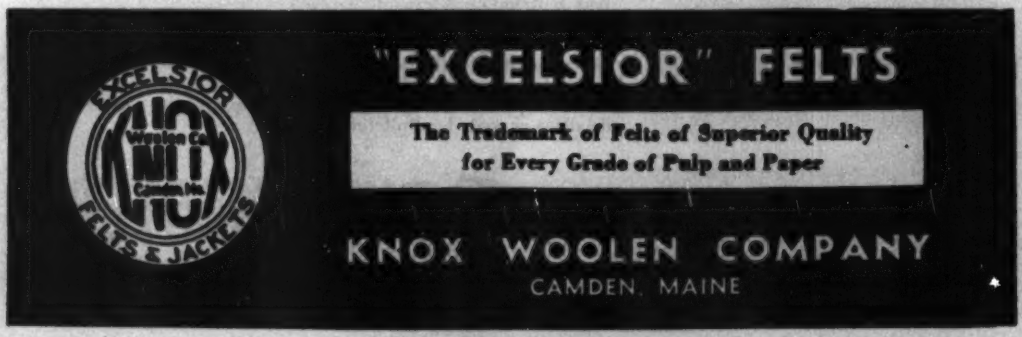
George Angus Davidson, 72, widely known in the paper industry, and associated with Howard Smith Paper Mills, Ltd., for many years, died in Montreal on September 15. Mr. Davidson joined Howard Smith Paper Mills in 1913 as sales manager, retiring in 1945.

Louis B. Hanchett, 73, associated with the Hanchett Manufacturing Co., Big Rapids, Mich. for over 50 years, was killed in an automobile accident near Williamston, Mich. on August 28th.

Mr. Hanchett served as secretary of the company prior to his recent retirement. Since that time, he has been active as a member of the Board of Directors. He was co-inventor with John Hanchett of the saw swage which was the firm's first product.

Mrs. Rose Magil, wife of Myer Magil, president of Penn Card & Paper Co., Inc., Philadelphia, Pa., died September 2, 1951. She has been active with her husband in the paper business since the firm started, forty nine years ago, serving in many capacities. As the business grew, and the present corporation was established twenty five years ago, she was elected president, which position she held until her death.

She is survived, besides her husband, by three sons, Dr. Reuben J. Magil, Rabbi of Temple Beth El in Harrisburg, Pa., Elia Magil, an attorney and Leon H. Magil, vice-president of the Penn Card & Paper Co., Inc.



CLEARING HOUSE

HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—board mill manager; supt. board mill; manager large pulp and paper mill, splendid salary and bonus arrangement; supt. specialty paper mill; night supt. Fourdrinier machine mill; supt. sulphate pulp mill; asst. controller, salary range $8,000-$10,000.

Plant engineers; project engineers and master mechanics up to $10,000 yr.; chief power plant supervisor; bag machine adjusters; chemists, chemical engineers and laboratory men (several); machine foremen, Cylinder, Fourdrinier and Yankee machines; bag factory foreman; salesmen to sell lithograph packaging and advertising material; beater engineers; machine tenders, back tenders, third hands and fourth hands.

Dyestuffs salesman with or without previous experience in selling, preferably one with technical education and several years' practical paper mill experience and can be developed into successful salesman.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES 9-21

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

WANTED—Master Mechanic or Assistant for modern 3-Machine Tissue Mill. Progressive management; expansion program now under way. Fine opportunity for young/middle aged man to advance. Substantial paper mill mechanical experience with electrical background desirable. Give complete resume of experience in letter to Box 51-442 care Paper Trade Journal. Replies held strictly confidential. TF

LAKE STATES Specialty Kraft Mill has need of Machine Tenders and Back Tenders. Best of working conditions. Pleasant progressive community. Splendid opportunity for qualified men. Write Box 51-458 care Paper Trade Journal giving detailed experience and background. S-21

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal. TF

WANTED — Machine Tenders and Back Tenders for corrugating medium and liner mill, Fourdinier and cylinder machines. Located in Western Pennsylvania; good working conditions; pleasant surroundings and very good labor relations. Call collect—Tarentum 1470, TARENTUM PRODUCTS CORPORATION, Tarentum, Pa. TF

HELP WANTED

PLYWOOD MILL SUPERINTENDENT

Manufacturer is seeking an Engineer as General Manager or Superintendent of medium-sized plywood mill.

Applicant should have successfully managed such plants and possess intimate knowledge of the entire operation of a plywood mill. Please forward complete resume in first letter, stating background, experience and remuneration desired.

All replies will be held strictly confidential.

Box #51-478 care Paper Trade Journal.

S-21

WANTED MANAGER for hand made bag plant. Must be familiar with all angles of the business. Reply giving experience, etc. to Box 51-475 care Paper Trade Journal. S-21

ONE MACHINE Midwestern fine paper mill has opening for Superintendent of Receiving, Finishing and Shipping. References required. Address 51-468 care Paper Trade Journal. S-28

WANTED — SALES ENGINEER — Experienced in Pulp and Paper Mills, for sales and service work in the South. Excellent opportunity with old established machinery manufacturer. In reply give resume of education, experience and current salary. Address Box 51-482 care Paper Trade Journal. O-12

SITUATIONS WANTED

WALLBOARD ENGINEER—with graduation from Swedish technical college and with 8 years experience in the Swedish wallboard industry/insulation, hard, ultra hard, desires responsible position. Address Box 51-473 care Paper Trade Journal. O-5

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-463 care Paper Trade Journal. S-28

SITUATIONS WANTED

PULP AND PAPER ENGINEER

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Address #51-474 care Paper Trade Journal 8-21

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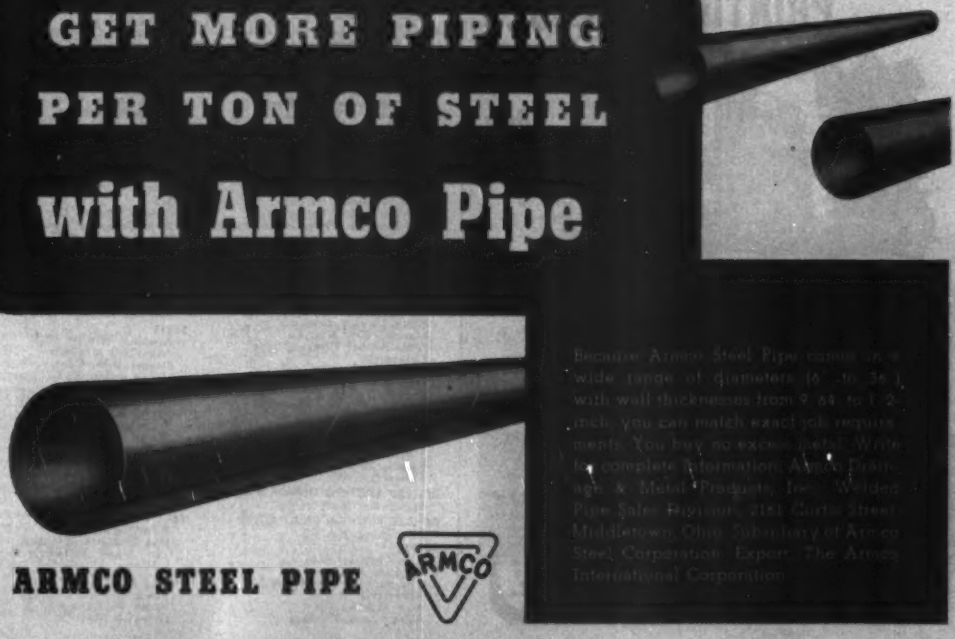

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MUSIC
POSTER
BOND
WRITING

ENVELOPE
MIMEOGRAPH
INDEX BRISTOL
POST CARD
COVER
CUP AND CONTAINER
FILE FOLDER
COATED
MACHINE COATED

KRAFT LINER BOARD
KRAFT CONVERTING AND KRAFT ENVELOPE

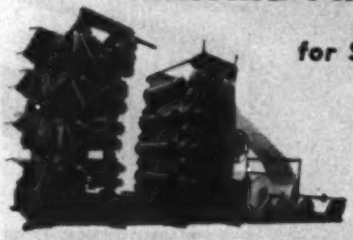
MILLS

Mechanicville, New York
Luke, Maryland
Covington, Virginia

Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

POTDEVIN OIL INK PRINTING PRESSES

for Specialty Bag Papers



Model 418 4-color multi-size, oil-ink printing press for all types of coffee, flour and sugar bag papers and printed wrappings. Automatic tension control rewind insures tight, evenly wound rolls.

POTDEVIN presses are available in a wide range of types and sizes. Incorporation of supplementary units for slitting, perforating or punching, make POTDEVIN presses universally adaptable. High speed models from one to six colors for drinking cup paper; coffee, sugar, flour bag papers; cellophane; glassine; parchment, etc.

Consult our engineers on any problem. No obligation. Literature on request.

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1223 38th Street Brooklyn 18, N. Y.

Designers and manufacturers since 1893 of equipment for Bag Making, Printing, Coating, Gluing and Labeling

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DE-INKING
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DEINKING CHEMICALS
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Kinsley Chemical Co.
Nopco Chemical Co.

DE-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.
The Permutit Company

DEMULSIFIERS
Wyandotte Chemicals Corp., Michigan Alkali Div.

DENSOMETERS
Bunge Pulp & Paper Co.
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
American Cyanamid Company Industrial Chemicals Division
Calgon, Inc.
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS CIRCULATING SYSTEMS
Fibre Making Processes, Inc.

DIGESTERS
Babcock & Wilcox Co.
Blaw Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering Superheater, Inc.
Lukenweld
Paper & Industrial Appliances
Pusey & Jones Corp.

DISPERSING AGENTS
Calgon, Inc.
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
Downingtown Mfg. Co.
Lobdell United Co.
Lodding Engineering Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
The Bagley & Sewall Company
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.

DRIERS
The Bagley & Sewall Company
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRILLED SUCTION COUCH ROLLS
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Manchester Machine Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

DRUM WINDERS
Manchester Machine Co.
Rice Barton Corporation

DRYER DRAINAGE
Stickle Steam Specialties Co.

DRYER ROLL PYROMETER
Thwing-Albert Instrument Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
American Cyanamid Company
Calco Chemical Div.
Bunge Pulp & Paper Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
National Aniline Division, Allied Chemical & Dye Corp.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

EMBOSSING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.
Wheeler Roll Co.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

EVAPORATORS
Davis Engrg. Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

EXPANDERS
Mount Hope Machinery Co.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Hoffl Company, Inc.
Jeffrey Mfg. Co.
Merrick Scale Mfg. Co
The Permutit Company
Stephens-Adamson Mfg. Co.

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mosser Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT GUIDES
Black Clawson Company
Frank W. Egan & Co.
Gilbert & Nash Co.

Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Sons, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
Bird Machine Company
Holyoke Machine Co.
J. M. Huber Corp.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Egan, Frank W., & Co.
Jeffrey Mfg. Co.
Lovejoy Flexible Coupling Co.
John Waldron Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOW BOXES, STAINLESS-CLAD
Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Clark Equipment Company Industrial Truck Division
Elwell Parker Elec. Co.
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

FURNACES
Hoffl Company, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Stroh Process Steel Co.
Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

GRAPPLES
Blaw-Knox Company

GRAVITY FILTERS
Holyoke Machine Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
John Waldron Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works

GUMS
National Starch Products, Inc.
Stein-Hall Co., Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Fibre Making Processes, Inc.
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.

HOSE (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL TRACTORS
Clark Equipment Company, Industrial Truck Division
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Brown Instrument Co.
Bunge Pulp & Paper Co.
Cambridge Instrument Co.
General Electric Company
W. & L. E. Gurley
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co.

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Johnson Corp.
Lovejoy Flexible Coupling Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Bros. Mch. Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

KRAFT WRAPPING PAPERS
Canadian Newsprint Supply Co.

LABORATORY CORRUGATOR
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
Egan, Frank W., & Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
John Waldron Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

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...at Less Cost

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★ Glidden Alpha* Protein solution is stable over a wide temperature range.

★ Glidden Alpha* Protein is compatible with the various pigments used and binds them to the fiber of the raw stock easily.

★ Glidden Alpha* Protein adhesive does not affect, to any extent, the brightness of the pigments used or their hiding power.

★ Glidden Alpha* Protein alkaline-cut adhesive permits addition of formaldehyde to coating colors to make the finished paper water resistant.

★ Glidden Alpha* Protein adhesive is free-flowing at a low water ratio.

★ Glidden Alpha* Protein adhesive keeps pigments or other insolubles more uniformly suspended—prevents formation of hard, difficult-to-disperse masses.

★ Glidden Alpha* Protein adhesive sets quite rapidly and dries easily without undue shrinkage or interference with the finish when the paper is calendered.

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1825 N. Laramie Avenue
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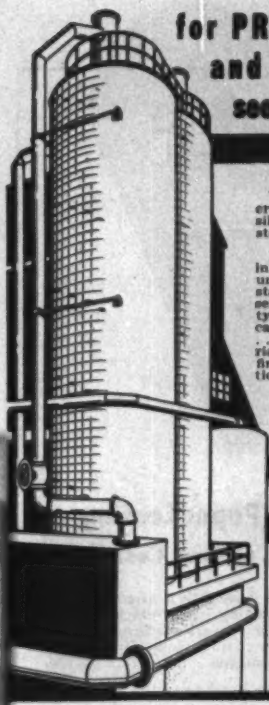

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MARIETTA, OHIO
Baltimore, Md.
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PM 3011
Pearl Starch
(For enzyme conversion)

● Specifically processed and controlled for ease of conversion under all practical mill conditions. Also, special grades of starch for:

- BEATERS
- COATING
- LAMINATING
- TUBSIZING

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CLINTON FOODS INC., CLINTON, IOWA

LIFT TRUCKS
Clark Equipment Company, Industrial Truck Division

LINTER COTTON
Alpha Cellulose Corp.
Railway Supply & Mfg. Co.

LINTER PULP
Alpha Cellulose Corp.

LUBRICANTS
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MAGAZINE REELS
Dilts Machine Works (Kohler Systems)

MATERIALS HANDLING
Clark Equipment Company
Industrial Truck Division
Cleveland Crane & Engrg. Co.
Dilts Machine Works
Jeffrey Mfg. Co.
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
The Wellman Engrg. Co.

METAL TIRES
Stroh Process Steel Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Stephens-Adamson Mfg. Co.
Testing Machines, Inc.

MICRO-CRYSTALLINE WAXES
Bareco Oil Co.
Bunge Pulp & Paper Co.
Moore & Munger
Sun Oil Company

MOISTURE CONTENT CONTROL
Canbridge Instrument Co.
Stickle Steam Specialties Co.
Williams Apparatus Co., Inc.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Reliance Electric & Engrg. Co.

NEWSPRINT
Bunge Pulp & Paper Co.
Canadian Newsprint Supply Co.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

NOZZLES
Spray Engrg. Co.

PACKING BOXES
Clark Equipment Company, Industrial Truck Division
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.

PALLET TRUCKS
Clark Equipment Company, Industrial Truck Division

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Manchester Machine Co.
Rice Barton Corporation

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Bagley & Sewall Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Moore & White Co.
Putney & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.

PARAFFINE WAXES
Moore & Munger
Sun Oil Company

PARAFFIN WAX EMULSIONS
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black Clawson Company
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PEBBLE MILLS
F. L. Smidth & Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.

pH METERS
Cambridge Instrument Co.
Thwing-Albert Instrument Co.

PIPE
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
National Tube Co.
Walworth Company

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
Walworth Co.

PITCH CONTROL
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.

PLASTICIZERS
American Cyanamid Company, Industrial Chemicals Division
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
J. O. Ross Engrg. Corp.
Lukenweld Division
Lukens Steel Company
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Egan, Frank W., & Co.
Manchester Machine Co.
Rice Barton Corporation

PRECISION SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Rice Barton Corporation

PRESSURE FILTERS
Holyoke Machine Co.

PRESSURE VESSELS
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.

PRESSES
Black Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mch. Co.
The Moore & White Co.
Potdevin Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULLEY
Lovejoy Flexible Coupling Co.
Rice Barton Corporation

PULP CLASSIFIER
The Bauer Bros. Co.
Thwing-Albert Instrument Co.

PULP CLEANERS
Nichols Engrg. & Research Corp.

PULP STOCK VALVES
Crane Company

Record Fdy. & Mach. Co.
Shartle Brothers Machine Co.

PULPERS
Apmew, Inc.
Bauer Brothers Co.
Dilts Machine Works
E. D. Jones & Sons Co.
Morden Machines Co.
Shartle Brothers Machine Co.

PULPS
Alpha Cellulose Corp.
Brown Company
Bunge Pulp & Paper Co.
Cottenham & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Restigouche Co., Ltd.

PULPSTONES
Norton Company

PULP TESTERS
Paper and Pulp Testing Laboratories
Williams Apparatus Co., Inc.

PULVERIZING MILLS
Combustion Engineering-Superheater, Inc.
Jeffrey Mfg. Co.
F. L. Smith & Co.

PUMPS
Allis-Chalmers Mfg. Co.
Apmewy, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Moore & White Co.
Rice Barton Corporation
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout Waldron & Co., Inc.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
APMEW, Inc.
Allis-Chalmers Mfg. Co.
Bird Machine Company
General Electric Co.
Johnson Corp.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies

RESINS
American Cyanamid Company, Plastics & Resins Division
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Pittsburgh Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co., Resinous Products Div.

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Lobdell United Co.
Edward J. McBride Co., Inc.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Rolf Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works (Kohler Systems)

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works (Kohler Systems)
Frank W. Egan & Co.
Moore & White Co.
Postlevin Machine Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
Black Clawson Co.
The Moore & White Co.
Rice Barton Corporation
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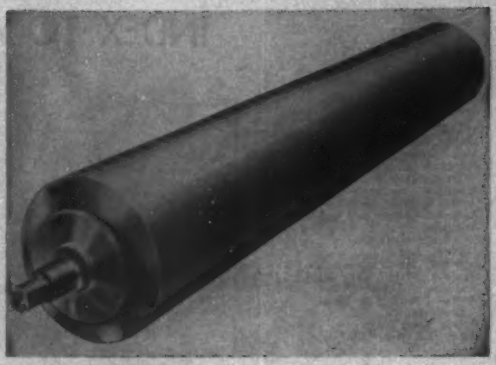

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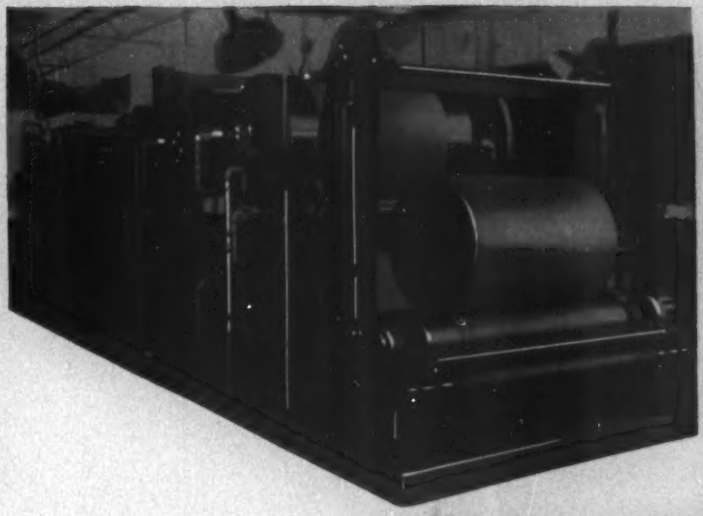

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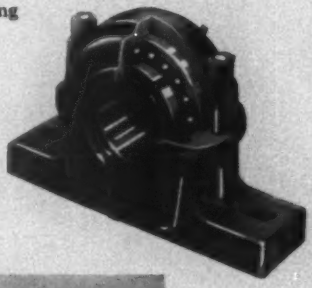
BUILT BY FRANK W. EGAN & COMPANY

Here's a laminator that produces more than 1000 feet per minute of combined kraft webs with asphalt. Built by Frank W. Egan & Company, Bound Brook, N. J., the laminator* shown here is installed in a large midwestern plant which manufactures bag liners for multi-wall bags used in shipping cement, lime and similar materials. Three accurately ground chilled cast iron coating rolls apply asphalt between two webs of kraft. Two laminating rolls, one steel and one rubber covered, complete the laminating process. Bond is tough, permanent, positive. SKF Spherical Roller Bearings support both coating and laminating rolls; Cooling Rolls are mounted on SKF SA Type Pillow Blocks. The two winding rolls use SKF Self-Aligning Ball Bearings. Builders of all types of paper mill equipment rely on SKF to help put the right bearing in the right place. They know they can rely on SKF to keep friction at the minimum, to smooth the path of power. 7220



*For detailed information on the laminator described here and other equipment, write Frank W. Egan & Company, Bound Brook, N.J.

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